

Manufacturers Record

Reg. U. S. Patent Office



NOVEMBER, 1936

BALTIMORE, MD.


THE TASK AHEAD

The task ahead requires, through individual effort, the development of our resources so that the idle may be employed and wealth created whereby the debt incurred may be repaid.

It has been necessary for the Manufacturers Record to discuss public policies not as a political advocate of any party or any man, but to examine the statecraft that affects business and, therefore, the welfare of every man, woman and child in the land. This will be continued in the future, as in the past, when circumstances call for it.

This country, built and developed by an aggressive people from the days of pioneers, will advance to greater development.

Based on what has been done and our unlimited natural resources, a future may be visualized that will engage the energy of every American capable of constructive activity.



Heavy work and rough weather
can't slow down this "Caterpillar"
Diesel's job of leveling off fill for a
new highway between Harrisburg
and Reading, Pa.

IT'S FIRST WHERE THINGS ARE HAPPENING

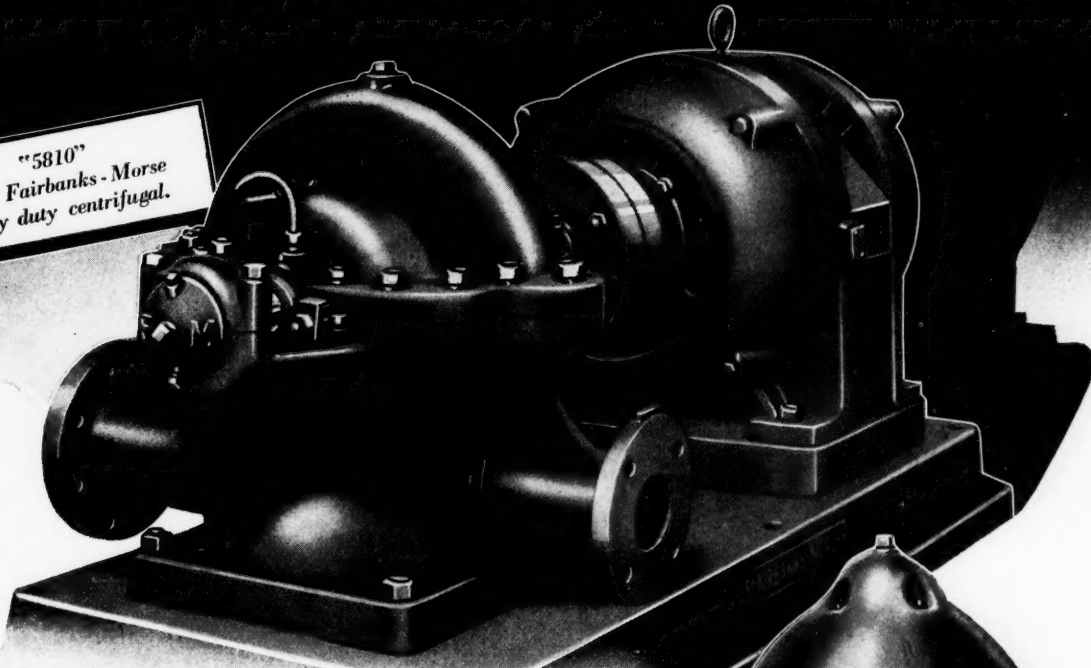
Where the tough jobs are done—where the records
are made—where stamina and power are getting
things done . . . that's where you'll see the rugged
"Caterpillar" Diesel Tractor in action. That's where
it has won its reputation, where its dependability and
stamina keep the job on schedule, where its revolu-
tionary low operating costs keep expenses down and
make low bids profitable, where its big power and
workability make every minute pay. And that's why
the "Caterpillar" Diesel Tractor is first choice today
—first for economy, first for results, first for long
life. Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR DIESEL

REG. U. S. PAT. OFF.

WATER COSTS MONEY!

"5810"
— A Fairbanks-Morse
heavy duty centrifugal.



F-M Pumps deliver it to the job at lower cost

● Like iron and steel, like cotton and copper, water is raw material and costs money to bring to your production line.

Are you cutting down the cost of water by handling it by the most efficient means possible? Are your pumps of the advanced hydraulic design that gives the most water for the least power expended?

If you can't answer an unhesitating yes to these two questions, a Fairbanks-Morse engineer should be called in to give you the facts and figures on your water supply. His report, based on the best engineering practice, will show you whether or not your plant's water requirements are being met efficiently—whether they are being met economically—if and how one of the many Fairbanks-Morse centrifugal or turbine pumps can save money for you.

This service is yours to command without cost or obligation. To get the facts, simply address Department N-31, Fairbanks, Morse & Co., 900 S. Wabash Ave., Chicago, Ill. 34 branches at your service throughout the United States.

F-M Turbine pumps
provide water from
deep well sources for
every plant use.



106
YEARS OF
PRECISION
MANUFACTURING

FAIRBANKS-MORSE

Pumps



POWER, PUMPING AND WEIGHING EQUIPMENT

6606PA40.31

Entered as second-class matter at the postoffice, Baltimore, Md., under the act of March 3, 1879, Volume CV, No. 11 Monthly

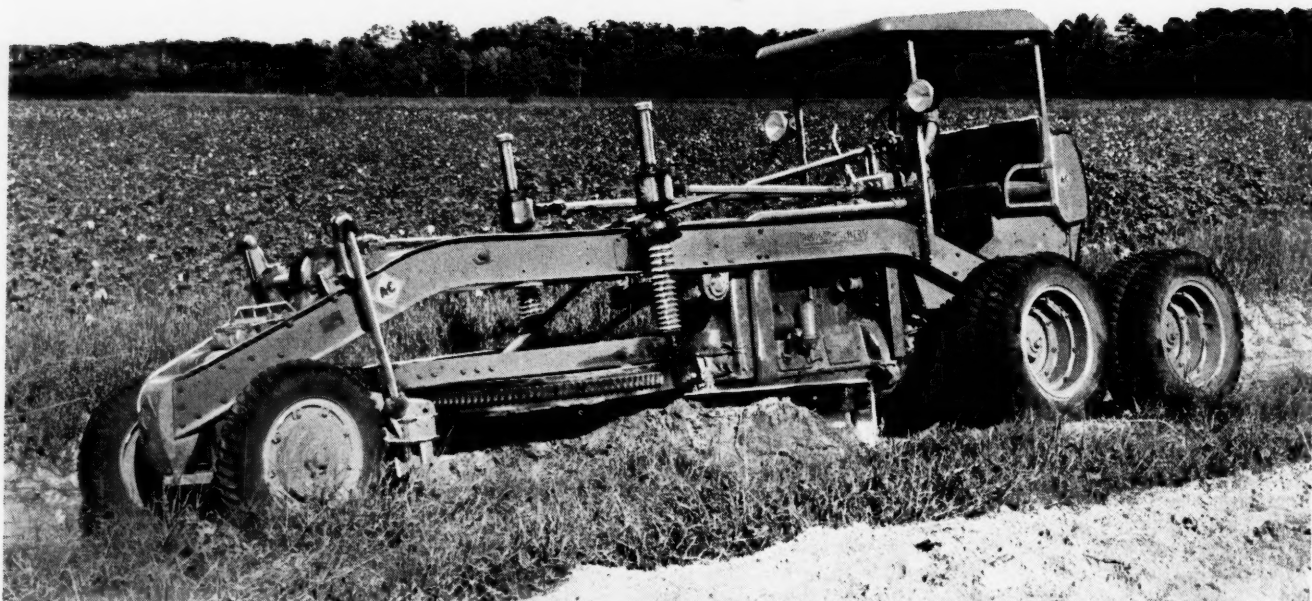
NOVEMBER NINETEEN THIRTY-SIX

5

3

ESTY PAVING COMPANY SELECTS

"The Only Complete Patrol"



ABOVE: Ditching with the No. 54 ALLIS-CHALMERS TANDEM DRIVE SPEED PATROL
On Esty Paving Company job near Cameron, S. C.

- No. 42 AND No. 54 SIZES
- FOUR WHEELS OR EIGHT
- DEPENDABLE GEAR DRIVE
- NO DIFFERENTIAL
- HYDRAULIC BRAKES
- GREATER BLADE BASE . . .
GREATER PRESSURE
- ALL BOLTED CONSTRUCTION
- COMPLETE WEAR TAKE-UP
- CORRECT SPEEDS FOR OPERATION AND TRANSPORT
- BUILT, BACKED AND SERVICED
BY ONE ORGANIZATION!

THE ALLIS-CHALMERS . . . TANDEM DRIVE SPEED PATROL

Chatterproof performance, correct speeds and sturdy construction are making "repeat" owners of Allis-Chalmers Speed Patrols. Whether the job calls for a single drive or a tandem drive unit, owners like Esty Paving Co. find that a Speed Patrol can be relied on for efficient performance at lower cost per mile.

Check the Allis-Chalmers advantages before you buy! No chains to stretch or wear—the Tandem Drive Speed Patrol has a dependable, quiet gear drive. Tandem assemblies pivot freely on the rear axle to assure traction for all wheels—regardless of ruts or ditches. No differential. Simple, easy-to-adjust hydraulic brakes. Largest area of circle working in guides. Greatest percentage of blade pressure. Heaviest drawbar of any motor grader. Proper balance and control. Plus many other exclusive features. Ask the A-C dealer.

ALLIS-CHALMERS

TRACTOR DIVISION—MILWAUKEE, U. S. A.

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NOVEMBER
1936

Volume CV No. 11



A Seam of West Virginia Coal

MANUFACTURERS
RECORD

Devoted to the Upbuilding of the
Nation Through the Development
of the South and Southwest as the
Nation's Greatest Material Asset

Published Monthly

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BLUE BOOK OF SOUTHERN PROGRESS

Member
A.B.C.

NOVEMBER NINETEEN THIRTY-SIX

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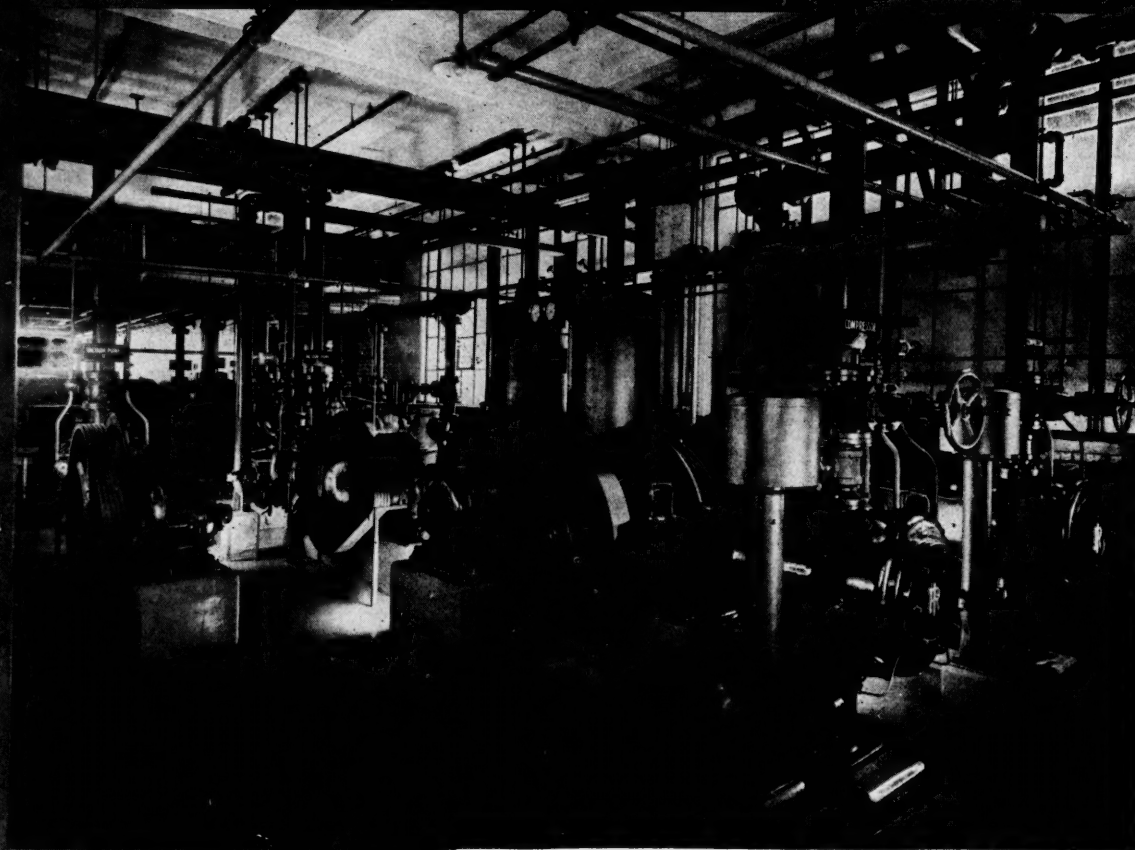
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2 COMPRESSORS 2 VACUUM PUMPS



Features

The most efficient single-stage compressor on the market today built for heavy-duty, full-load, continuous service.

Equipped with Channel Valves, the greatest advance ever made in compressor valve design.

Each main bearing is a double-row Timken tapered roller bearing.

Built for pressures from 5 to 150 pounds, vacuums up to 29½ inches of mercury, for any type of drive.

All are Ingersoll-Rand Class ES

THIS large, modern metal container manufacturing plant relies upon Class ES compressors and vacuum pumps for the two media that are so essential to the successful operation of its complicated automatic machinery. Other plants of the same company in several different cities also use Ingersoll-Rand Class ES compressors to supply air for their similar purposes.

This type of compressor can be equipped with a non-lubricated cylinder for use where compressed air must be free from oil contamination.

Described completely in Bulletin No. 3063.

BIRMINGHAM
BOSTON
BUFFALO
BUTTE
CHICAGO
CLEVELAND
DALLAS
DENVER
DETROIT
DULUTH
EL PASO
HOUSTON
KNOXVILLE

Ingersoll-Rand

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PITTSBURGH
SALT LAKE CITY
SAN FRANCISCO
SCRANTON
SEATTLE
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TULSA
WASHINGTON
LOS ANGELES
NEWARK
NEW YORK
PHILADELPHIA

291-1

World's Largest Boiler Unit

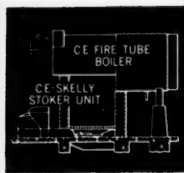
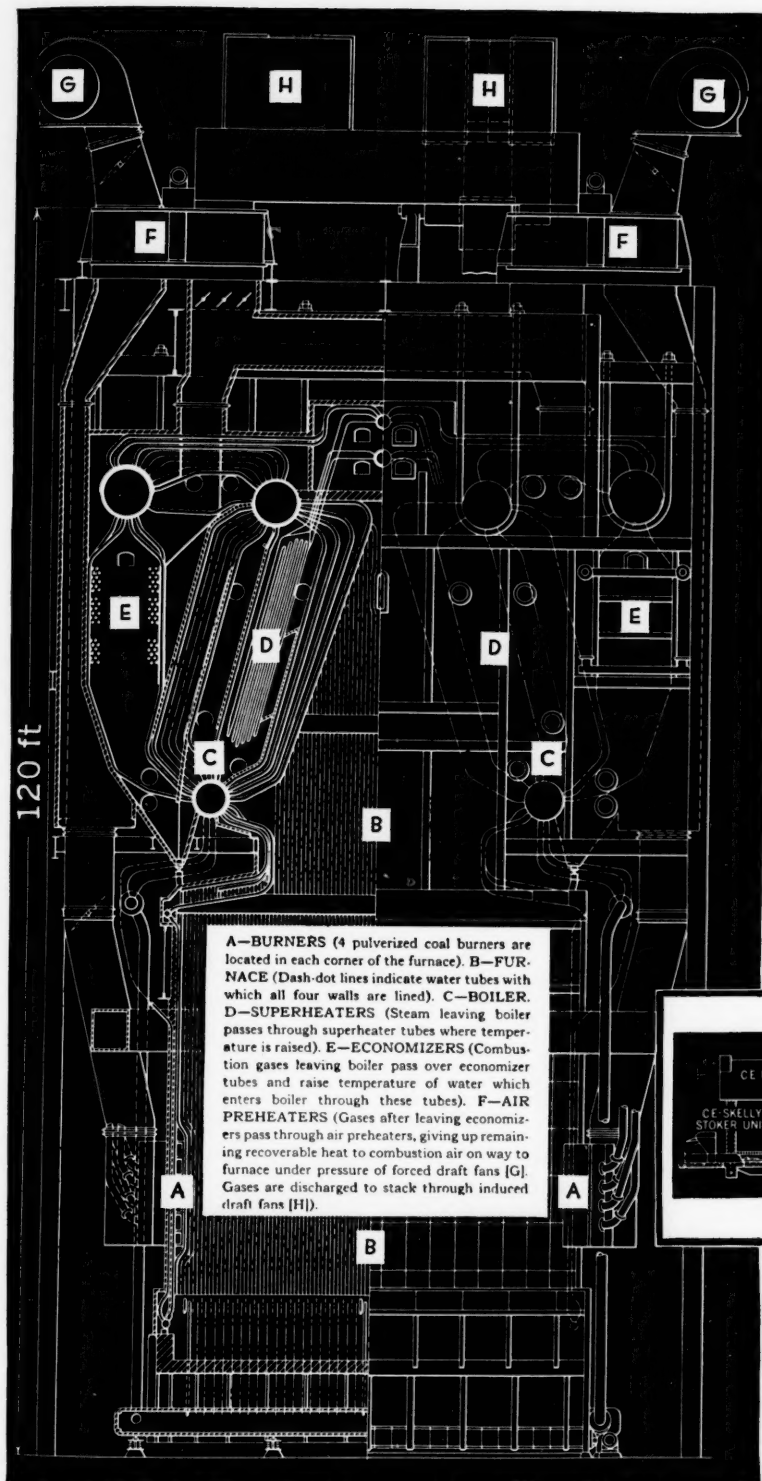
.. from this giant, to boiler and stoker units of 25 hp—

*the CE line meets all
steam requirements*

The mammoth steam generating unit shown at the left, now under construction in CE shops, will be the first in the world to be built for an output of 1,000,000 lb of steam per hr. When operating at this rate it will burn about 46 tons of coal every hour. A turbine-generator large enough to utilize its full capacity could supply the light and power requirements of a city the size of Cincinnati.

The small boiler and stoker shown below represent the other extreme of CE installations. Such units are available for capacities as low as 25 hp. From this point up to the highest capacities required, CE Boilers, Stokers, Pulverized Fuel Burning Systems and related equipment constitute the most complete line in the industry.

Whatever your needs you can buy CE equipment with confidence that it will be *right* for your conditions, that it will perform dependably and produce your steam requirements at minimum cost. Take advantage of CE experience when planning your next installation.



Typical CE installation for small boiler plants—factories; office, hotel, apartment and institutional buildings; warehouses, garages; laundries; dairies; greenhouses, etc. The range of CE installations may be judged from the fact that 1000 units of this size would have about the same capacity as the large CE Unit shown. The drawings indicate relative sizes of the two units.

View of front elevation of unit with left half shown in section. Designed to produce 1,000,000 lb of steam per hr at a pressure of 1425 lb per sq in. and a temperature of 925 deg fahr, this unit, equivalent in height to a 10-story building, will be placed in service in 1937 in the Logan, W. Va., plant of the Appalachian Electric Power Company, subsidiary of American Gas & Electric Company. While this unit is the first to be designed for the capacity indicated, there are five other boiler units in the world capable of producing 1,000,000 lb per hr. Four of these five units are CE installations.

COMBUSTION ENGINEERING COMPANY, Inc.

200 Madison Avenue

New York

Canadian Associates:

Combustion Engineering Corporation, Ltd., Montreal

A-310

Hydraulic Turbines

•

Francis and High Speed Runners

• •

Penstocks—Butterfly Valves—
Power Operated Rack Rakes
—Gates and Gate Hoists
—Electrically Welded Racks

• • •

Newport News Shipbuilding and Dry Dock Co.
(*Hydraulic Turbine Division*)

90 Broad Street, New York, N. Y.

Newport News, Virginia



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Today, throughout some 110 different industrial fields, this new profit-making rule works successfully for all men who own machines or run them: "Talk with the Socony-Vacuum Representative when he calls."

70 Years' Experience Making Gargoyle Lubricants Mean Correct Lubrication

SOCONY-VACUUM OIL Co.

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WADHAMS OIL COMPANY • MAGNOLIA PETROLEUM COMPANY • GENERAL PETROLEUM CORPORATION OF CALIFORNIA





MAN WITH A *Memo book* ABOARD

Mem. Never occurred to me before what tremendous strength must be required in the inside structure of those huge wings. They tell me the inside looks like a honeycomb of Aluminum beams and such. Never realized Aluminum was so strong. Knew it was light.

Mem. Asked the co-pilot about the motors. Said *they* were nearly all Aluminum, too. Not only because Aluminum is light. Seems that the extra heat conductivity of Aluminum makes the motor more efficient. Said I ought to look, sometime, at all the wonderful Aluminum castings and forgings in the engines.

Mem. No paint on the exterior of this ship! Looks great, in spite of all the weather it's been through. So that's what they mean when they say Aluminum is resistant to corrosion!

Mem. Thought I'd make a list of all the things in the ship made of Aluminum. Started with chairs. Discovered the list would have to include practically everything aboard. No wonder they talk about versatility. Beauty, too.

Mem. Look into this business of Aluminum when I get home.

In this organization you will find the "know-how" which will help you to utilize the fullest advantages of Alcoa Aluminum Alloys in your product. An airplane is just mass-in-motion. So is every moving or mobile part of simple or complex machines. The lightness and strength of Alcoa Aluminum has made the airplane of today. It can make your product better, too. Our engineers are at your service. Aluminum Company of America, 2109 Gulf Bldg., Pittsburgh, Pa.



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of bu
opera
Blowe
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contra
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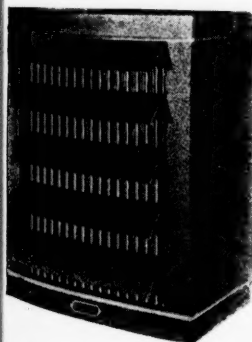
6000
Division

AMERICAN BLOWER UNIT HEATER SALES BREAKING ALL RECORDS!



**"LOOK BEFORE YOU
BUY" TEST IMPRESSES
PURCHASERS**

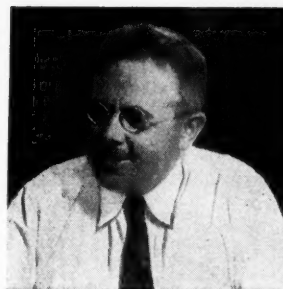
Sales of American Blower Unit Heaters are greater than at any previous time in the history of the corporation. Each succeeding month sets a new high and breaks a previous record. **The reason:** our liberal, unqualified offer of a ten-day free comparison test is proving to the complete satisfaction of buyers the extra value, better performing qualities, quieter operation and attractive, more modern design of American Blower Unit Heaters. **The result:** buyers of heating equipment are getting more for their money—are insuring their business against costly heating waste, winter blizzards and sub-zero days. Act now! Look before you buy. Ask your heating contractor for data on American Blower Unit Heaters or mail the coupon.



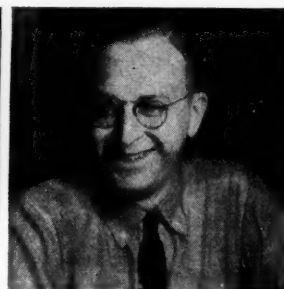
MAKE THIS CONVINCING TEST

Look before you buy. Compare carefully. Let us send you a Venturafin Unit Heater for a 10-day comparison test. There's no obligation. We'll pay the freight both ways—you be the judge. Just mail the coupon or phone our nearest office.

Read what these users SAY!



"I've spent 30 years in engineering work," says Paul Williams, engineer. "I like the sturdy construction of American Blower Heaters."



"We tested 7 makes of heaters before we selected American Blower Units for our plant," says Carl E. Lambert, plant manager.

Great New Modern Method of Heating Saves Money!

Unit heaters are the time-proved, efficient method of heating factories, shops, stores, warehouses, garages, offices and industrial. They force heated air where you want it—cut installation and operating costs and occupy the minimum of space. American Blower Units are the accepted standard—proved by over 100,000 units in use heating more than 300 million square feet of floor space.

AMERICAN BLOWER CORPORATION

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Division of American Radiator & Standard Sanitary Corporation

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- ☐ Please send Unit Heater for comparison to:

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THE THREE CARDINAL FACTORS OF
TRAFFIC SAFETY ARE THE CAR—
THE DRIVER—THE ROAD—

Concrete's moderate first cost, long life, low maintenance and low driving costs make it the most economical pavement money can buy—not only for arterial highways but also for secondary roads carrying only a few hundred vehicles daily.

and the safest
road is CONCRETE !

Let us send you new booklet "Safety Sealed in Concrete," a non-technical discussion of the problems of highway and street safety.

Any thorough traffic safety campaign must recognize and deal with all three of these important factors.

Automobiles are already approaching perfection from a safety standpoint. They stop better, handle more easily, respond faster. They have better headlights and tires.

Drivers are improving. They are responding to vigorous educational campaigns, and they are benefiting by more uniform systems of traffic control.

But what about the road?

Street and highway engineers are doing a big job in providing easy curves, modern alignment, ample sight distance, grade separations, adequate width and uniform signs and signals. But underlying all these improvements is the basic need for the safest possible pavement surface.

Concrete answers that need. Its gritty texture reduces skidding in wet weather. Its light gray color and well defined edges improve visibility in the more dangerous hours of darkness. Its flat crown makes the whole road surface usable; discourages the tendency of drivers to hug the center line. And concrete's even surface makes driving easier, reduces nervous strain and results in better car control.

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WHEN you need cast iron pipe quickly, any kind, anywhere, *put it up to "U. S."* We ship from 15 plants and storage yards throughout the country, by water, rail and truck. We manufacture a complete

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U.S. cast iron PIPE

Cast iron and alloy cast iron pipe centrifugally or pit cast—for water works, gas, sewerage and drainage service as well as industrial uses involving corrosives.

U. S. PIPE & FOUNDRY CO.
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*The pacemaker in
wire rope development*



THE most exacting basis for judging wire rope performance is AVERAGE SERVICE.

This is the basis advocated by Roebling, in which rope cost per ton of material handled, or per other unit of service measurement, is based not on the service of a single rope but on the average service of several ropes.

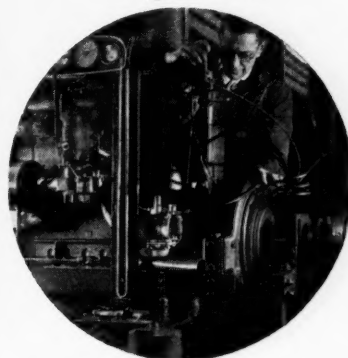
John A. Roebling's Sons Co.,
Trenton New Jersey

FLEET OPERATORS HAVE PROVED IT!

YOU Can AFFORD
TO USE *Gulfpride Oil*
IN YOUR CARS AND
TRUCKS



Just one of the many steps Gulf Scientists
take to insure the high service value of
Gulfpride Oil



An 8-cylinder automotive engine on the test dynamometer to determine the wear-life, horsepower output, carbon formation and friction losses due to differences in characteristics of motor oils.

OPERATING COST FIGURES prove that it's
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World's finest Motor Oil (100% Pure Pennsylvania)

Gulfpride is the only motor oil in the world refined by the "Alchlor Process." This famous process *literally* starts where others leave off. By removing the trouble-making impurities left in motor oil by less effective refining methods, the Alchlor Process produces an oil which has no equal.

Trucks and commercial cars operate with far less ex-

pense when Gulfpride is used. Here is a typical statement—from a man in charge of a large fleet of trucks: "Our maintenance costs this year—with Gulfpride in service—have been less than half our former costs. We seldom need to add oil to any of our trucks between drains—which are less frequent than before. Gulfpride has *more than paid for itself* in our equipment."

You can afford to use Gulfpride Oil—because it costs less to use! More per gallon—but less per mile.

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GULF REFINING COMPANY



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for Fast Service . . .
plus the RIGHT STEEL for your needs
. . . depend on your

J & L WAREHOUSE



When you order steel from a warehouse, you want quick delivery. But you also want steel in readily usable form and exactly suited to your needs.

You get that kind of service when you order from any one of the J & L Warehouses serving the South. Quick delivery is assured because J & L Warehouses are situated at strategic centers. Shipments are generally made immediately on receipt of your order; always within 24 hours.

Being an integral part of the Jones & Laughlin Steel Corporation, each J & L Warehouse carries complete stocks carefully classified as to qualities, and trained

steel men know exactly what grade will best meet your need. Previous orders can be duplicated exactly. You will find, too, that because every J & L Warehouse has the most modern equipment for cutting, forming and bending steel, you can get the steel you need for construction and maintenance requirements in ready-for-use form—and thus save time, money and trouble.

Take advantage of the fast complete service that J & L Warehouses are daily providing to steel users in the South. J & L Warehouses in New Orleans, Cincinnati, and Pittsburgh are fully equipped to meet all your requirements. Order from the one nearest you.

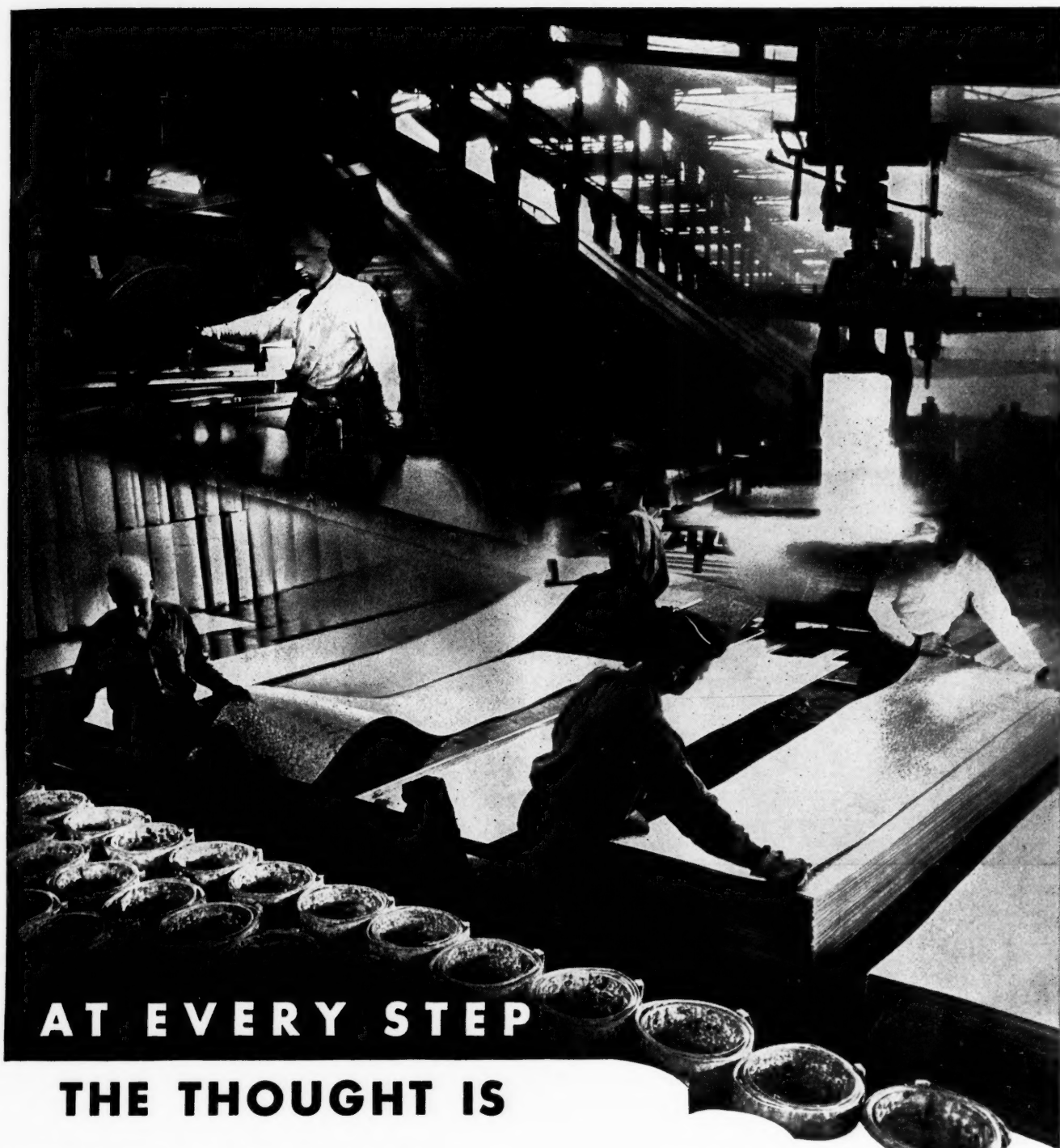


**J & L
STEEL**

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS
PITTSBURGH, PENNSYLVANIA

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Warehouses: CINCINNATI MEMPHIS NEW ORLEANS PITTSBURGH



AT EVERY STEP

THE THOUGHT IS

"How can the best forming qualities be obtained?"

THE foundation for the easy-working qualities of Bethlehem Galvanized Sheets is laid in the open-hearth furnace, and every subsequent operation is carefully carried out in a way to build up these properties. The teeming of the ingots, the rolling operations, as well as annealing, each contribute their share to the final result.

Consequently, Bethlehem Galvanized Sheets are exceptionally dependable in any use involving bending or fabricating. In cornice work they take an even bend of any desired angle,

and hold it. They consistently stand up to severe double seaming without cracking.

Their tight, even galvanizing, that doesn't flake or scale in applications involving bending, is a further advantage.

In exposed applications the same high dependability in working qualities can be had in Beth-Cu-Loy Sheets. Sheets of Beth-Cu-Loy contain from 0.20 to 0.30 per cent copper, and as disinterested tests have shown, sheets of this composition outlast sheets without the copper by from 2 to 2½ times in service exposed to weather or moisture.

BETHLEHEM STEEL COMPANY



NOVEMBER NINETEEN THIRTY-SIX

17

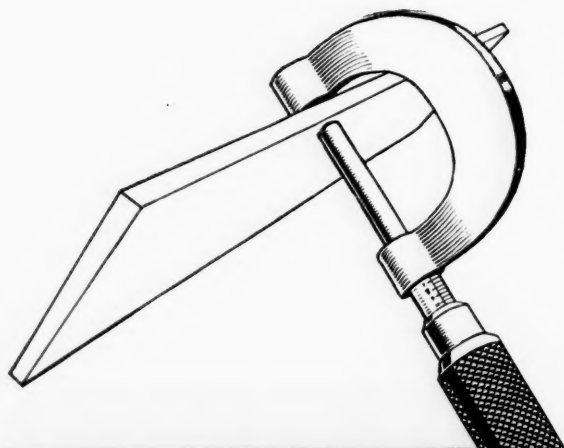
GULFSTEEL PLATE

MAKES *better-looking, better-lasting*
FUEL-OIL STORAGE TANKS



Storage tanks fabricated of Gulfsteel Precision Plate by the Birmingham Boiler & Engineering Co., of Birmingham, Alabama...Each tank is 27,000 gallons capacity, 30 feet 5 inches long, 12 feet diameter, and welded throughout

If you fabricate steel plates, you know that **PRECISION** accuracy, particularly of thickness, is essential. Our strict and personal system of control assures this accuracy to users of **GULFSTEEL Precision PLATES**... Their uniform thickness, their even, snug-fitting edges, their neatly sheared ends—expedite welding and riveting... Let us show you how **GULFSTEEL Precision PLATES** will give you greater service without greater cost.



GULF STATES STEEL COMPANY
BIRMINGHAM, ALABAMA

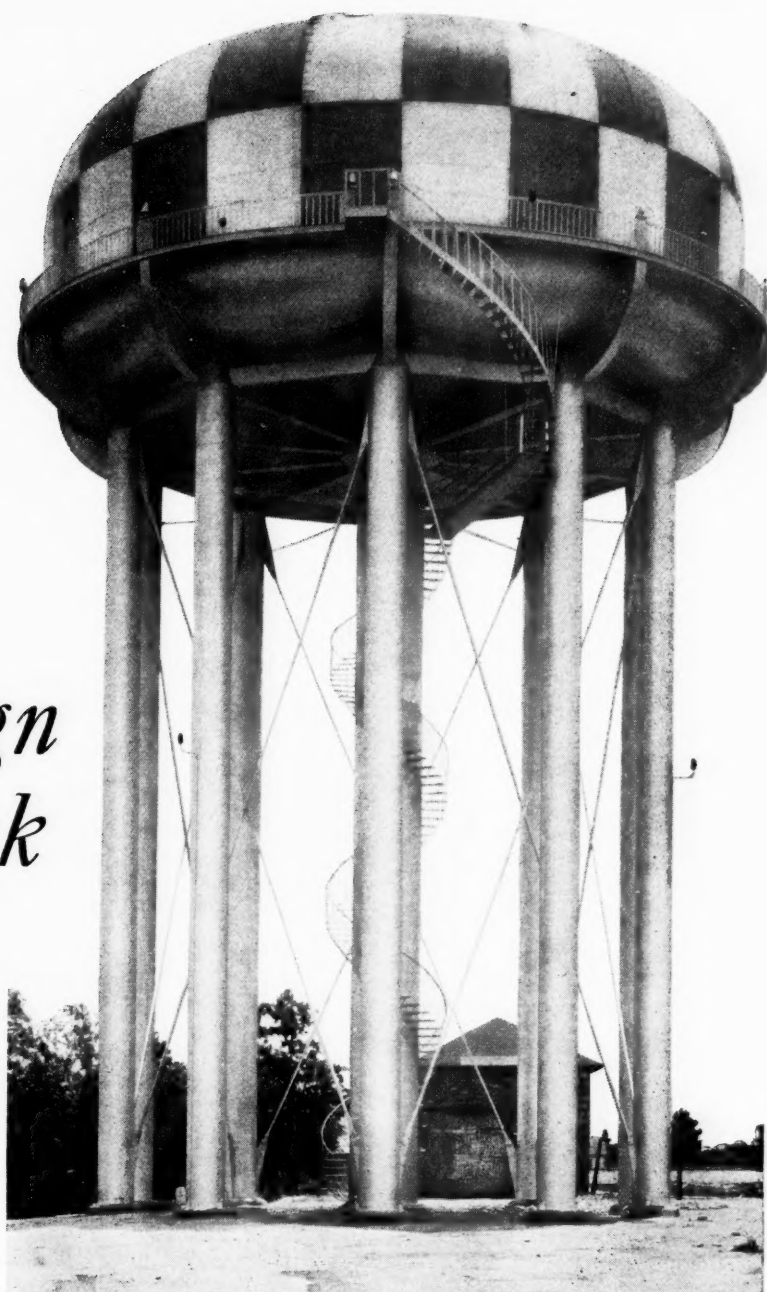
GULFSTEEL PRECISION PLATE

Colonial Design Elevated Tank

Pleasing in appearance

... Modern in design

Efficient in operation



The City of Augusta, Ga. recently installed the 500,000-gal. Colonial design elevated tank illustrated above in its waterworks distribution system. It is located in the western part of the city and provides gravity water pressure for a rapidly developing residential district.

The Colonial design embodies several distinctive features. The tower is made up of full-length tubular columns, without horizontal struts. The tank has a radial cone bottom and is relatively large in diameter and shallow in depth. The roof emerges in a continuous curve from the top of the tank shell. The handrail on the balcony is made up

of vertical members to harmonize with the general lines of the structure.

The entire structure is well proportioned and pleasing in appearance. At the same time, it provides adequate storage at sufficient elevation to meet peak loads and maintain uniform pressure in the distribution mains at all times.

Our nearest office will be glad to send you information or estimating figures on the Colonial design or on standard tanks to meet your requirements. We also build steel storage tanks, bins, smokestacks and steel plate work of all kinds of riveted or welded construction.

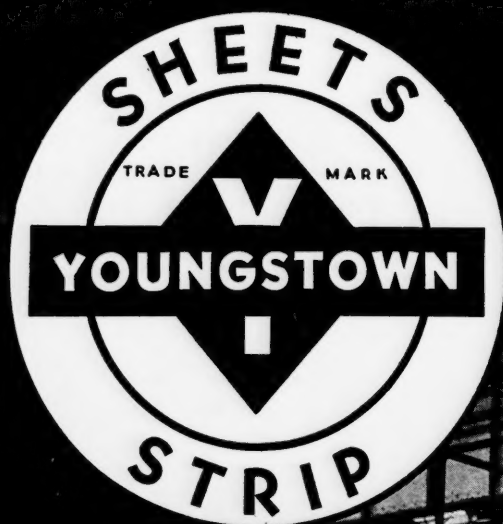
CHICAGO BRIDGE & IRON WORKS

Birmingham	1530 North Fiftieth St.	New York	3313-165 Broadway Bldg.	Philadelphia	1619-1700 Walnut Street Bldg.
Dallas	1408 Dallas Athletic Club Bldg.	Cleveland	2216 Rockefeller Bldg.	Detroit	1510 Lafayette Bldg.
Houston	2919 Main Street	Chicago	2106 Old Colony Bldg.	Boston	1510 Consolidated Gas Bldg.
Tulsa	1611 Thompson Bldg.	San Francisco	1040 Rialto Bldg.	Havana	Edificio Abreu 402

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

B-475

HOT ROLLED COLD ROLLED



COMPLETELY MODERN PRODUCTION FACILITIES

HOT ROLLED

SHEETS

12 gauge to $\frac{1}{2}$ " inclusive

13-14 gauge	up to 72" wide
15-16 gauge	up to 66" wide
17-18 gauge	up to 60" wide
19 gauge	up to 48" wide
	up to 36" wide

in either cut lengths or coils

STRIP

9" to $25\frac{1}{8}$ " in coils; $4\frac{1}{2}$ " to $23\frac{1}{8}$ " in cut lengths

The superior quality of Youngstown flat-rolled steel is constantly guarded by intensive metallurgical control and rigid inspection methods. Even these precautions, however, would prove insufficient if our production facilities and equipment were not completely modern and efficient. Men, methods and machines each play a vital part in attaining and maintaining the final result.

COLD ROLLED

SHEETS

28 gauge and heavier; widths 24 to 90 inches inclusive. In either coils or cut lengths depending upon gauge and size.

STRIP

.015 and heavier; widths 9 to $23\frac{1}{8}$ inches inclusive. In either coils or cut lengths.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon and Alloy Steels

General Offices

YOUNGSTOWN, OHIO

Tubular Products; Sheets; Plates; Tin Plate; Bars; Rods; Wire; Nails; Conduit; Unions; Tie Plates and Spikes.

In a hundred years

We've learned a lot about making Wire

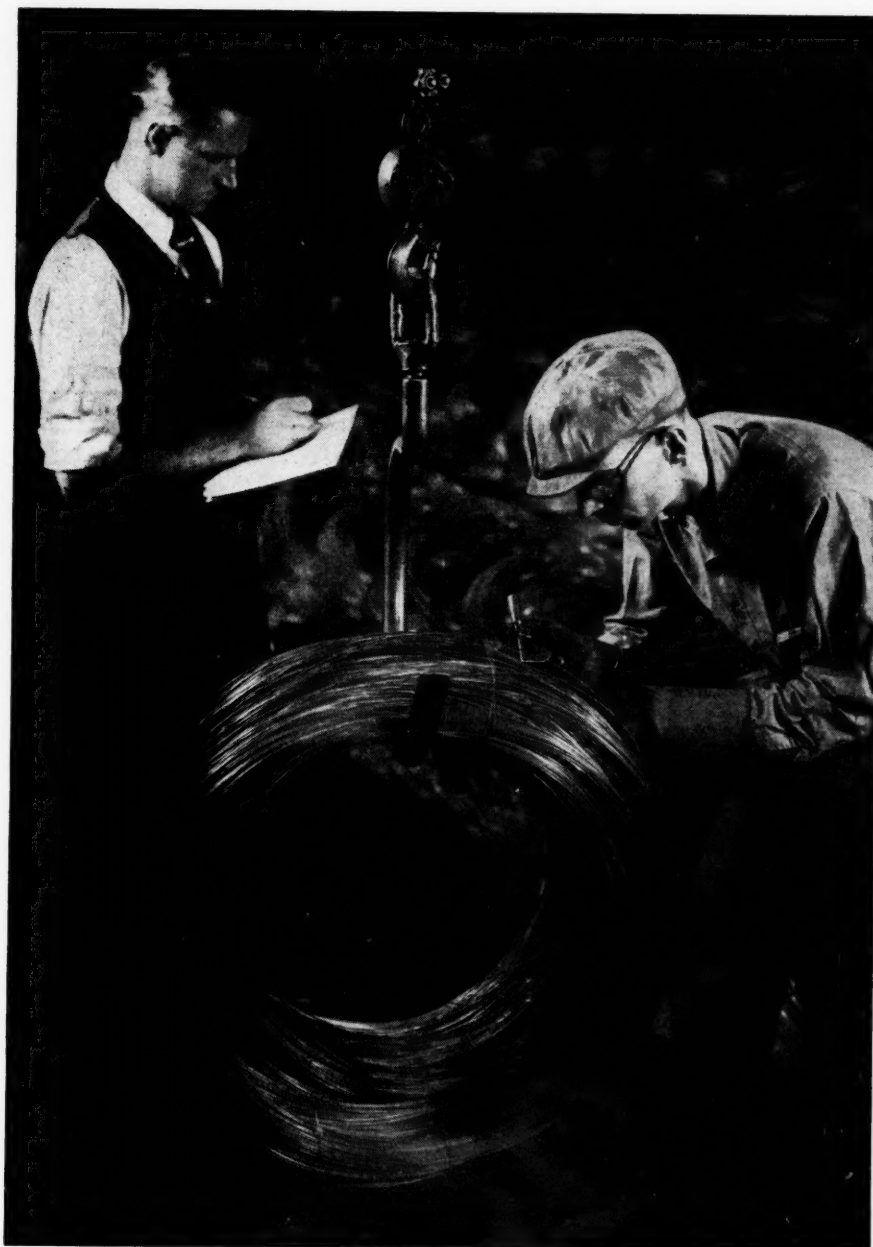
USERS of wire will admit that more than a century of wire making experience is a tremendous asset. In serving three generations of wire users, thousands of new needs for wire have been introduced, many of them presenting extremely difficult metallurgical and production problems. We've learned a lot about making wire by solving the wire problems of an industrial age that has moved rapidly forward.

More important to you is the fact that long ago we learned to put quality into wire. It means that when you order wire from the American Steel & Wire Company you profit from our years of experience in getting uniform wire that exactly meets your specifications.

Our many mills are strategically located so that deliveries can be made promptly and economically to meet your schedule of production. When you need wire for one or for many purposes, you will find that American Quality Manufacturers Wire will serve you best.



Premier Spring Wire • Weaving Wire • Pin Wire • Bolt, Rivet and Screw Wire • Broom and Brush Wire • Pinion Wire • Basic & Bessemer Screw Stock • Premier Tested Welding Wire • Flat Nut Stock • Hair Pin Wire • Mattress Wire • Music Spring Wire • Piano Wire • Amercut Cold Finished Steel Bars • Pump Rod Bars • Wool Wire • Wire Rods • Also, USS Stainless & Heat Resisting Wire



AMERICAN QUALITY WIRE

AMERICAN STEEL & WIRE COMPANY

208 South La Salle Street, Chicago
Columbia Steel Company, San Francisco,
Pacific Coast Distributors

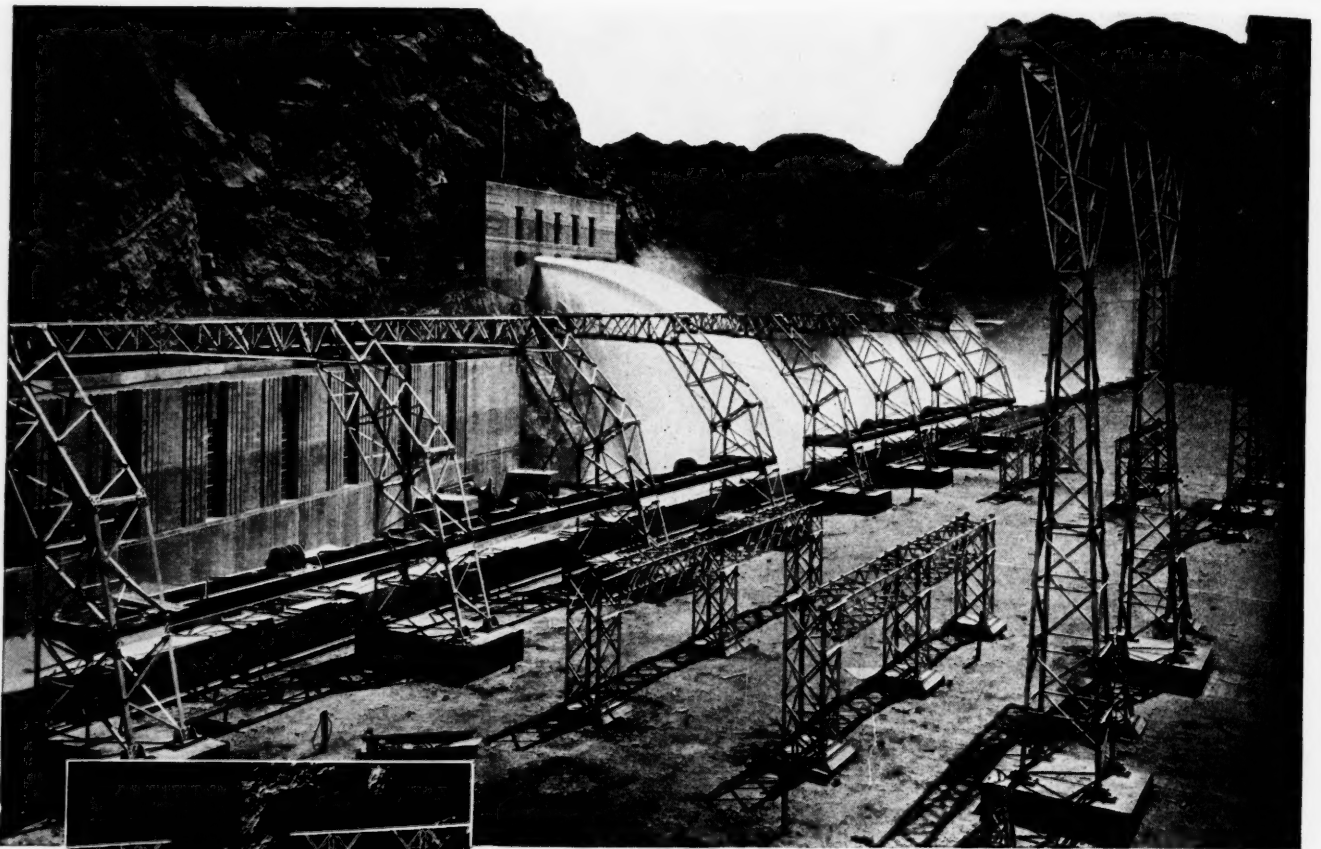


Empire State Building, New York
United States Steel Products Company, New
York, Export Distributors

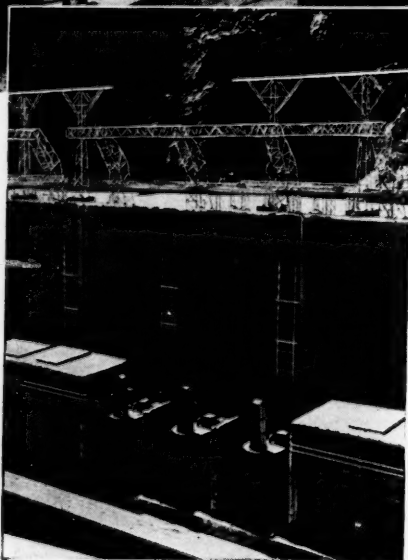
UNITED STATES STEEL

TAKEOFF TOWERS

start Power from Boulder Dam



Rising vertically, from the transformers, power lines are led to the overhanging towers at the left and onward to the tower frames at the right, for takeoff up the cliff to the switchyard on the canyon's rim. Center frames are for lightning arresters.



Nevada power house wing shows takeoff structure fabricated by American Bridge Company, with transformers in place below.

THROUGH power lines supported by this steel framework, on the roof of the Boulder Dam power house, electrical energy at 287 KV is started on its 266-mile journey to Los Angeles. This switch rack was fabricated by American Bridge Company, as was the structural steelwork for the heavily framed power house itself. And the twin transmission line to Los Angeles across the Mojave Desert, is carried on

towers of the Rotated Type, a development by the American Bridge Company.

The Tower Department of the American Bridge Company has technical personnel, galvanizing facilities, and modern fabricating and erecting equipment for any tower or substation project you may have. In addition, there is available equipment for full-size tests of the largest towers in present-day use.

A M E R I C A N B R I D G E C O M P A N Y

General Offices: Frick Building, Pittsburgh, Pa.

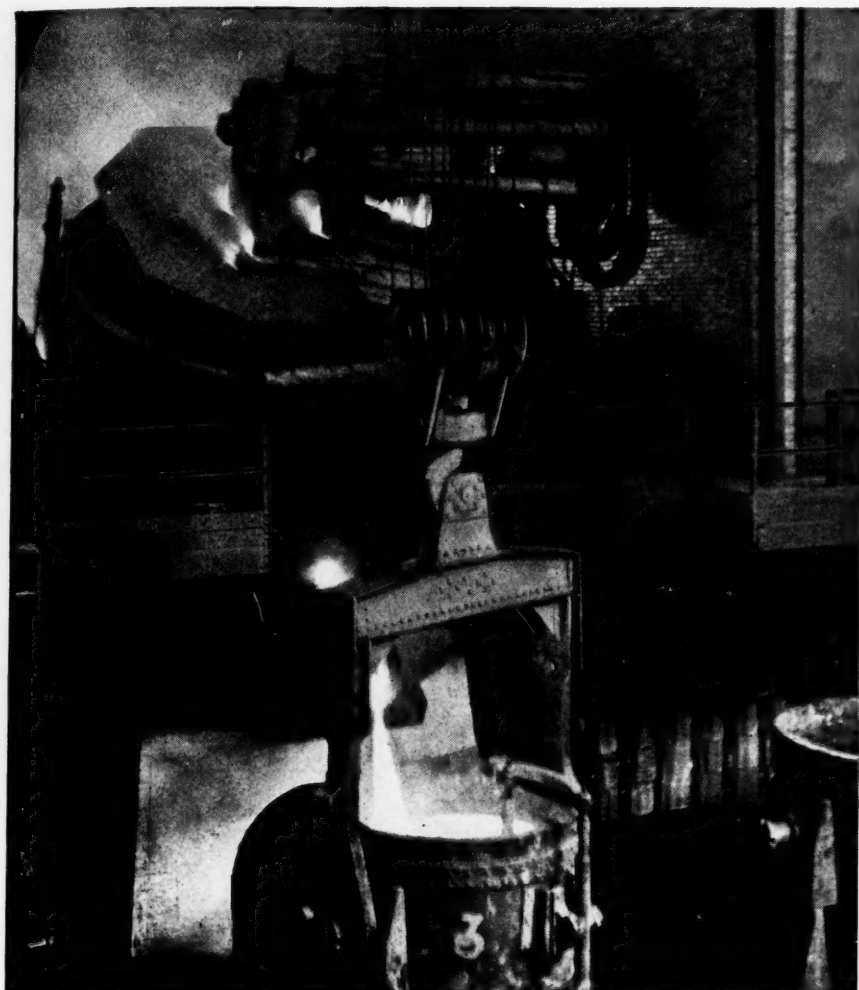
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Columbia Steel Company, San Francisco, *Pacific Coast Distributors* • United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

Want *half a ton?* ...or 100 Tons?



(Above) Pouring one of this pair of Type 25 Heroult Electric Furnaces.

(Below) A double installation of Type 25 Heroult Electric Furnaces.



USE HEROULT ELECTRIC FURNACES

WHEN you melt or refine any kind of ferrous metal—alloy and tool steels, iron and steel castings—by either basic or acid process, you will get efficient operation and excellent metallurgical performance with a Heroult Electric Furnace

Consider these points —

- 1 — Extremely sturdy design lowers upkeep costs.
- 2 — Strong and simple tilting mechanism (assures safety in operation).
- 3 — Friction losses and inertia are reduced to a minimum to give sensitivity of control.
- 4 — Charge quickly by hand, chute, bottom-drop bucket, or machine—depending on size and operating conditions.
- 5 — Melt quickly because of high-powered flexible transformer equipment.
- 6 — Operating costs are low because of careful attention to details of mechanical, electrical and refractory design.

American Bridge Company can design and construct a Heroult Electric Furnace to meet your special needs.

AMERICAN BRIDGE COMPANY

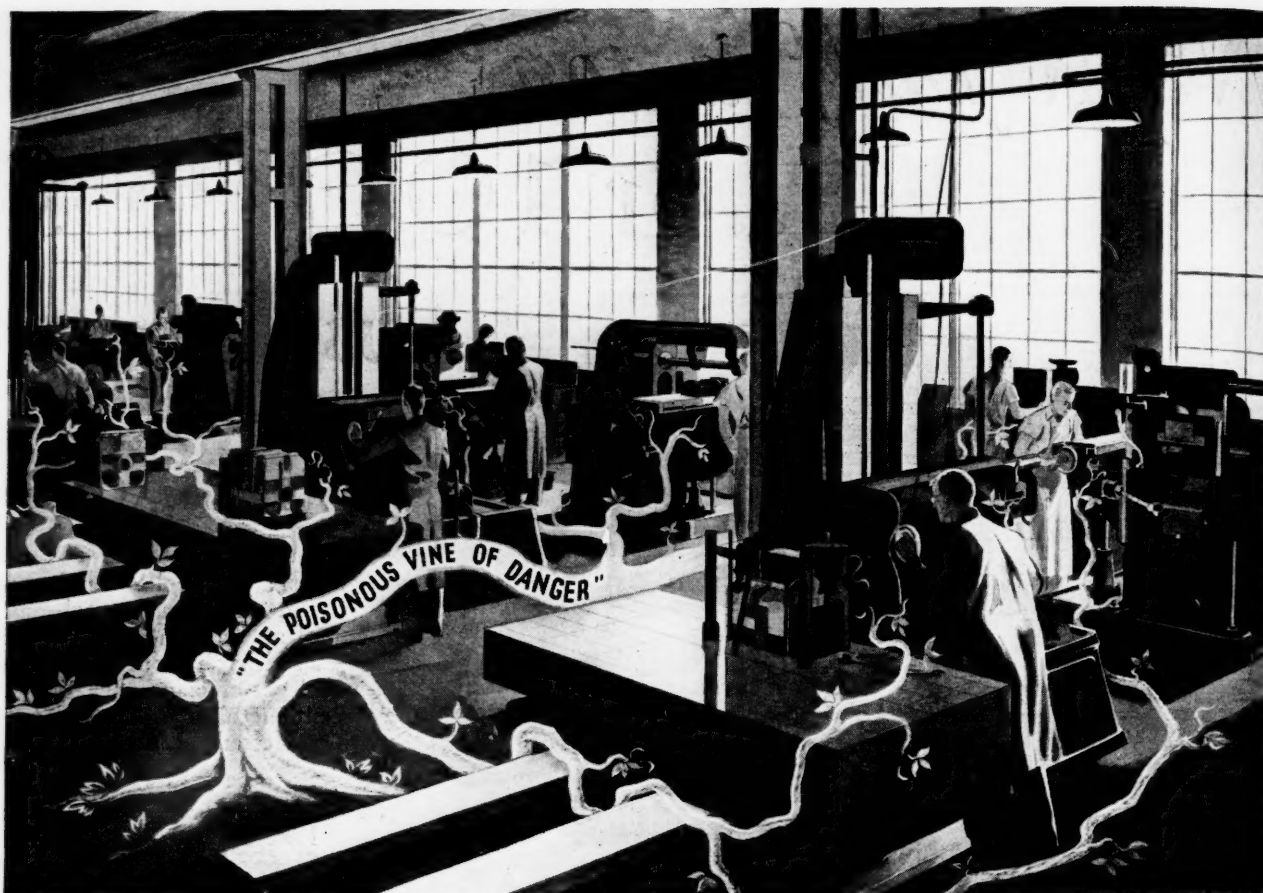
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UNITED STATES STEEL



no longer a threat to profits for 50,000 executives

Most accidents don't happen—they *grow*. Not from chance, but *conditions*—indifference, carelessness, lack of efficient direction.

For Danger is a red vine—coiling about men and machines, each square foot of space . . . threatening the flow of production.

This is how American Mutual sees danger . . . and attacks the safety problems of its policyholders. Our engineers do more than install mechanical guards . . . they dig down for the root of the vine that is poisoning profits.

So, to American Mutual policyholders, workmen's compensation insurance is an integral part of production—truly an opportunity for 3 profits. One from this economical safety work that low-

ers accident costs; another from medical service that aims to restore injured men to their jobs; a third from the cash dividend that has always been paid.

Since 1887, all of our policyholders have received 20% or more each year . . . a total of more than \$50,000,000.

The nationally-known Liquid Carbonic Corporation saved \$82,232.26 in 17 years through American Mutual dividends on workmen's compensation insurance.

These 3 profits have made 50,000 executives actively interested in workmen's compensation insurance. They would recommend that you read "How Twelve Companies Saved More Than A Million Dollars." Write for your copy.

Admitted Assets: \$23,809,545.32

Liabilities: \$19,424,978.69

Surplus to Policyholders: \$4,384,566.63

As of December 31, 1935

An American Mutual Policy . . . an Opportunity for Three Profits

AMERICAN MUTUAL

LIABILITY INSURANCE COMPANY

The Largest Writer of Workmen's Compensation Insurance in the South

Executive Offices: 142 BERKELEY ST., BOSTON, MASS.

BRANCHES IN 53 OF THE COUNTRY'S PRINCIPAL CITIES INCLUDING

ATLANTA, Ga.
MEMPHIS, Tenn.

GREENVILLE, S. C.
BIRMINGHAM, Ala.

NEW ORLEANS, La.
LOUISVILLE, Ky.

GREENSBORO, N. C.
BALTIMORE, Md.

NASHVILLE, Tenn.
JACKSONVILLE, Fla.

CHARLOTTE, N. C.
RICHMOND, Va.



Burroughs

PLAN YOUR PAYROLL ACCOUNTING NOW

*to obtain the
information required by the*
SOCIAL SECURITY ACT

Many employers are finding in recent Burroughs developments a simple solution of the accounting problems set up by the Federal Social Security Act. Often the exceptional speed, ease and economy of new Burroughs machines make it possible for employers actually to lower accounting costs and still have the additional information required.

In fact, many say: "We are glad the Social Security Act prompted us to investigate, because we now have the complete payroll accounting system we have needed for a long time."

Investigate. Let a Burroughs representative assist you in meeting your payroll problems now, so you will be prepared to furnish the information required by the Act when it becomes effective the first of the year.



**BURROUGHS TYPEWRITER
ACCOUNTING MACHINE**

Writes check (or pay envelope), earnings record, employee's statement and payroll summary in one operation. Column selection automatically controlled. All totals accumulated. This machine is only one of several models; payroll work is only one of the many jobs they do.



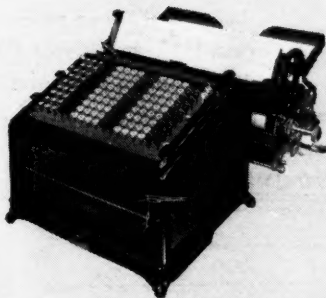
**BURROUGHS DESK
BOOKKEEPING MACHINE**

Posts earnings records, automatically prints dates in proper columns, automatically subtracts deductions—calculates net pay. Can also be used as a fast, practical adding-subtracting machine for all kinds of accounting work. Many styles and many models—all low in price.



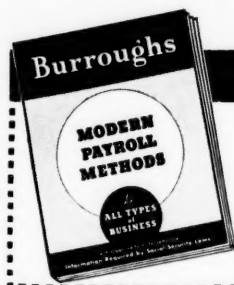
**BURROUGHS CHECK-WRITING
TYPEWRITER**

Writes payroll checks in units or in strips. Payroll summary completed in same operation. Fast and easy insertion and removal of checks. Can also be used as a typewriter for correspondence and general typing. Electric carriage operation. Several models.



**BURROUGHS AUTOMATIC
PAYROLL MACHINE**

Writes check (or pay envelope), employee's earnings statement, earnings record and payroll summary in one operation. Accumulates all necessary totals. Many models for payroll work, as well as for scores of other accounting jobs.



SEND FOR THIS NEW PAYROLL FOLDER!

BURROUGHS ADDING MACHINE COMPANY, 6253 SECOND BLVD., DETROIT, MICH.

Send me the new folder "Modern Payroll Methods," illustrating complete payroll accounting methods, with typical entries and suitable column headings for maintaining the information required by the Social Security Act.

Name _____

Address _____

Wider Horizons

THE rural community—the classic “small town” of Lewis, Tarkington and Twain—faces a new future. Electric service and all that electric power and light mean to home life, commercial stimulation and industrial development, have carried urban advantages and opportunities throughout the countryside.

The small community supplied from integrated, interconnected electric transmission systems today has the ability to invite and foster the development of a healthy industrial life. It has the ability, by virtue of adequate electric resources, to capitalize the opportunities presented by trends toward industrial decentralization. With an electric service which, in its character, quality and reliability, is superior in our system to that in many of the largest centers, these communities have the opportunity

to benefit from industrial expansion or the changes arising from economic shifts.

No overnight outgrowth this—but the result of long years of plans and policies devoted to these aims; studied, measured, weighed, engineered for permanence, stability, adequacy and economy.

The human and social values of these contributions to American progress far outweigh the cost of electricity, though rates have been constantly reduced throughout the past twenty years.

The country has “come to town”—electric power and light has improved living conditions, cast off the shackles of older, costlier methods, lifted burdens of human toil and widened the horizon of commercial, industrial and community opportunity.

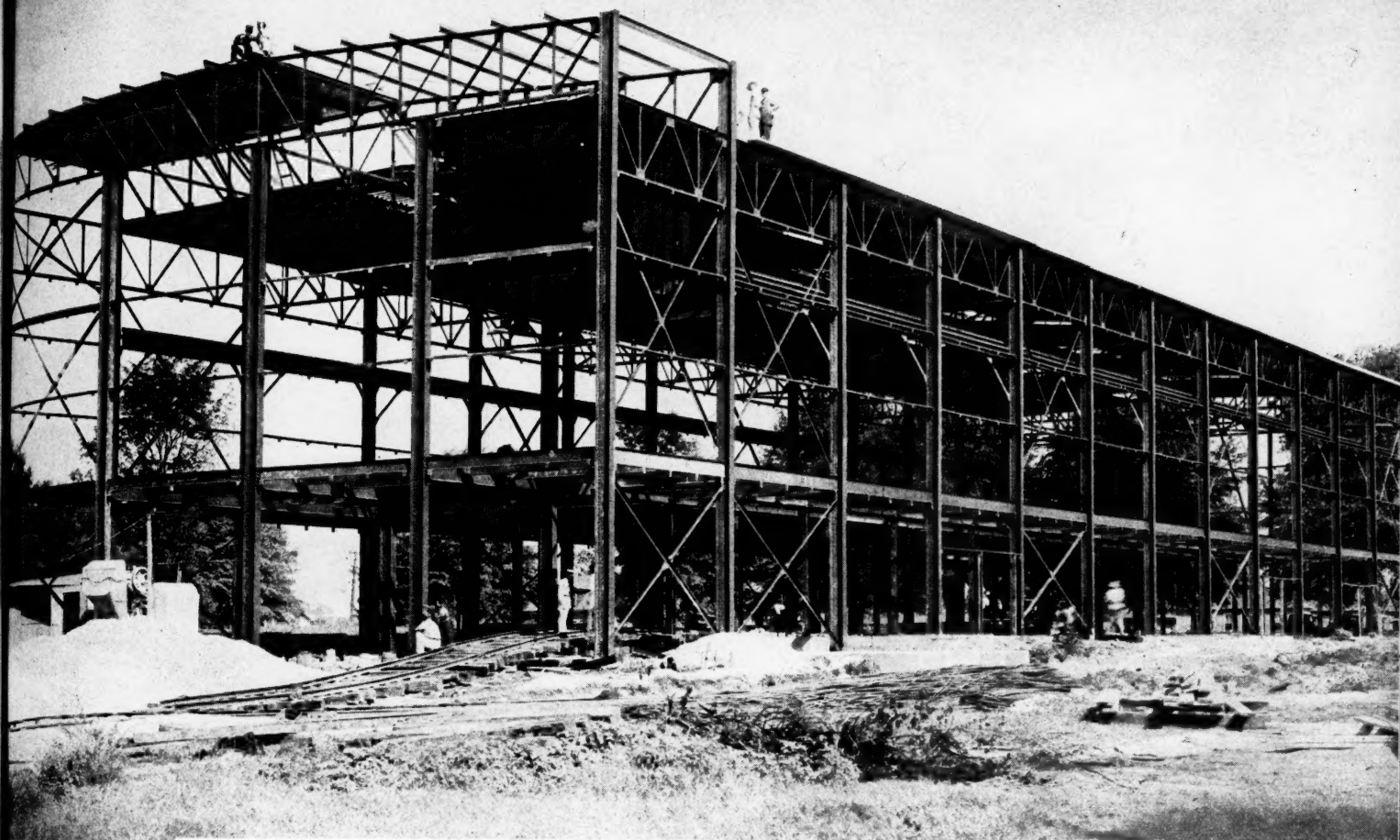
★ ★ ★

At the close of 1935, our operating companies served 935,305 residential electric customers, who consumed 14.21% more electricity on the average than in 1934. They, together with 241,345 residential gas customers, bought from the companies, mostly on generous credit terms, over \$14,000,000 worth of appliances, a new high record.

Helped by the Objective Rate Plan, devised by our company in 1932, the average residential electric rate in the territory served by our operating companies declined from 5.19c in 1932 to 3.96c in 1935, to 3.67c for the year ended August 31, 1936; and to 3.49c per kilowatt hour for the month of August, 1936. In the year 1935, the average residential rate per kilowatt hour of the Commonwealth & Southern group was 21.3% lower than the national average and the average consumption per residential customer was 21.9% above the national average. The rates of our companies, in each of the 11 states in which they operate, are lower by a wide margin than the average for the state.

The COMMONWEALTH & SOUTHERN CORPORATION

MICHIGAN — OHIO — ILLINOIS — INDIANA — PENNSYLVANIA — GEORGIA
FLORIDA — MISSISSIPPI — SOUTH CAROLINA — ALABAMA — TENNESSEE



—and it started with sawdust

HERE'S SOUTHERN INDUSTRIAL ROMANCE!

A SOUTHERN LUMBER manufacturer was confronted with the problem of what to do with his sawdust, lumber ends and other waste products.

Some burned it. Others used it to fire boilers while still others gave it away for fire wood. But this manufacturer had another idea: why not make it into wall board, flooring and other building products?

He did. And there came into being a plant that has grown to be the largest modern manufacturing plant in the state of Mississippi; and the product and trade name have become familiar in every corner of America.

Now a new unit, here illustrated, is being built. It will produce plastic fibre board.

This is one illustration, included in the list of great industrial plants going up in the

South. It supplies products to the building industry of the nation.

The capital investment in new and expanding manufacturing plants in the South in the first ten months of this year amounts to \$235,720,000 already a hundred million more than for the entire year of 1935.


Iron and steel manufacturers, fabricators, manufacturers of all products entering into industrial buildings from the foundation to the roofing; the boiler and engine rooms, electrical equipment, the process machinery, basic materials and chemicals; engineering, supervision and labor—all are encouraged by increased opportunities in the South and Southwest.

• • •

MANUFACTURERS RECORD
BALTIMORE, MARYLAND

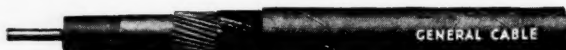


Rural Electrification

 GENERAL CABLE
BARE COPPER WIRES AND CABLES


 GENERAL CABLE
COMPOSITE COPPERWELD-COPPER CONDUCTORS


 GENERAL CABLE
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 GENERAL CABLE
GUARDIAN BUILDING WIRES & CABLES

 GENERAL CABLE
ROMEX—NON-METALLIC SHEATHED CABLES



GENERAL CABLE CORPORATION

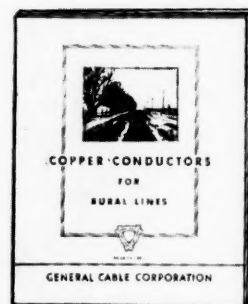
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NEW YORK • PHILADELPHIA • PITTSBURGH • ROME • SAN FRANCISCO • ST. LOUIS • SEATTLE • WASHINGTON, D. C.

THE RURAL SOUTH is a market of large potentialities. The current program of rural electrification is of far-reaching social as well as economic significance.

Southern business joins with the electric industry in a deep interest in promoting the present program and its logical development.

For those directly involved in project planning, General Cable has published an 82-page DATA BOOK on the characteristics and performance of COPPER CONDUCTORS for Rural Electrification. This valuable design information is in concise usable form. We shall be glad to send engineers a copy of Booklet CRE-1 with our compliments.

Write our nearest
Sales Office



• Manufacturers Record •

SOUTHERN INDUSTRY ADVANCES

THE industrial march of progress steadily spreads over the South. New iron and steel plants are the latest additions to the growing list of giant manufacturing enterprises being established in the Southern States. Featured in this remarkable development of recent months are pulp and paper mills, chemical plants, textile mills and a wide diversity of manufacturing activities.

During October \$58,000,000 were invested in new industrial construction alone in the South, the highest single monthly total for this classification. For the 10 months of this year, the record of the total industrial contracts let exceeded \$235,000,000 which is 72 per cent more than was reported for the entire twelve months of 1935 and 193 per cent above each of the years 1934 and 1933. In fact, all engineering and building awards of \$770,769,000, for the 10 months, passed any yearly total since 1930.

The South is rapidly proceeding to great industrial achievements. So fast is the rate of progress that the record cited in these columns last month was quickly broken.

Another major advance since then is the announced \$29,000,000 expenditure for additional iron and steel manufacturing facilities at Birmingham by the Tennessee Coal, Iron & Railroad Company, a subsidiary of the United States Steel Corporation; the \$2,000,000 or more expected expenditure for further expansions at Gadsden by the Gulf States Steel Company; an \$8,000,000 kraft pulp and paper mill at Georgetown, S. C.; a \$7,000,000 kraft mill at Brunswick, Ga., and other large industrial undertakings are in sight.

The new iron and steel development in Alabama, adding more than \$31,000,000 to the South's industrial capital, takes its place in importance with the previously reported eight large kraft pulp, paper and linerboard mills which call for a total investment of approximately \$50,000,000. There are being reported also hundreds of small plants representing many industrial groups, most of which are locally financed. A notable illustration of this is in the more than 26 hosiery mills projected in the Southern States. Steel mills, pulp and paper mills, other chemical plants and a wide variety of enterprises have located and more and more of them are being located in the South because of its favorable advantages. Not only are new

industries being established, but extensions and enlargements are being made to existing plants.

The importance of the Steel Corporation's move at Birmingham is of special significance to the whole South. Since 1907, when it first entered the Birmingham district, its faith in the South has been abundantly shown by continuing vast expenditures and the results of its efforts have been seen in what has been accomplished. The MANUFACTURERS RECORD may appropriately refer to its own not unimportant part in securing proper recognition by the steel interests of the importance of Alabama's vast iron ore, coal and limestone resources, and in turn of the importance to Alabama and the South of extending an outstretched hand to this vast enterprise. The ensuing mutual happy results demonstrate the wisdom of every reasonable encouragement being offered private industry that employs, invests and upbuilds.

The great chemical plants established in the South during the past two or three years represent industrial outlays of \$85,000,000. The manufacture of paper from Southern pine; the expansion of plants using forest raw materials and by-products; the further enlargement of textile manufacturing and fabricating plants; the food processing industries; the tung oil and other manufacturing activities that are continuously swelling the industrial capacity of the South, are all part of a movement that recognizes the advantages of a section of the country so remarkably endowed with every major requirement of modern industry.

That this trend will continue is certain, because the South not only has the raw materials, but it has the climate, American labor and living conditions generally that are ideal for successful industrial operation.

The Nashville *Banner*, in referring to the pronounced progress the South is making, says:

"It marks the dawn of a new era for the South and for the nation. The South must meet it with willing and ready cooperation. It can be achieved without sacrifice of the ideals peculiar to it. The opportunity is here, not for a 'boom,' with undesirable consequences, but for the sound and substantial building of an industrial structure such as the new plant at Birmingham represents. Yet the South must manifest an equal faith, with that shown by those who choose it for their investments."

The South is not only "on the eve of a great industrial advance," as Secretary of Commerce Roper recently said, but the advance is actually under way over a wide front.

THE BILL MUST BE PAID

TAX collections in the United States last year were estimated at \$9,650,000,000. They have been rising annually since 1933. The National Industrial Conference Board estimates that the ratio of tax collections, Federal, State and local, to national income was 18 per cent for 1935, as compared with 14 per cent for the fiscal year 1929-1930. The per capita tax burden amounted to \$75.67.

Collections will be larger in 1936 and still greater in 1937 under the new income tax law, and the Social Security Act which levies 2 per cent on the payrolls of the nation, 1 per cent being taken out of the wages and salaries of the workers.

This question of increased taxes is of paramount importance whichever political party is in control of national or local affairs.

When consumers must pay a dollar in taxes for every \$5 spent for shoes; when they pay 6 cents in taxes for every 35 cents worth of meat; when 24 per cent of rental payments goes for taxes, and a man who smokes a package of cigarettes a day pays \$21.90 in taxes in a year's time, and proportionate taxes on every purchase made, then the cost of government comes home to each one with impelling force.

In a record of a worker's family expenditures for one year it was shown that out of a total annual income of \$2600, the head of the family worked 22½ days to earn the money involved in the tax bill on his food and clothing alone.

Not only are excessive Federal Government expenditures responsible for the high cost of government, State and local governments' cost with their multiplicity of departments and duplicated agencies add to the burden. **The cost of the payroll of 3,000,000 Federal, State and local government employees is estimated at about \$4,000,000,000 a year. This payroll has to be met by the taxpayers of the nation.**

Reduction of the tax burden can come through elimination of extravagance and waste in government and also through reduction of governmental units and overlapping bureaus to require fewer government employees. The tax bill must be paid, but as a nation we can adopt more efficient methods and reduce the cost of government so that it will not be necessary for a working man to turn over his earnings for five or six weeks out of each year to the tax collector.

FOR SAFETY

A RECENT editorial in the *Miami Herald* dwells upon the pressing need for a law in Florida compelling drivers of automobiles to be licensed. It seems strange that it should be necessary in any state to call attention to the necessity for such legislation. There are, however, a number of states where either no license is required, or no examination for driving ability. Any consideration of the tragedies enacted every day by motorists operating faulty cars, or being themselves unfit for the operation of any car, shows glaringly why licenses are necessary and furthermore, what is not demanded even in states that

require licenses, why there should be abundant evidence of character and sobriety before permitting potential destroyers to run loose.

For several years automobile manufacturers, committees of citizens, road builders and others have, through the press and in public meetings, stressed the need for measures that will lessen the death toll. The rapid growth of motor travel has made our present highways inadequate to carry the traffic, but whatever the road program of the future may be as to building for safety and regulation for use, the human element must be reckoned with. There never will be a road or an automobile built that will make an irresponsible idiot a safe driver. The great need is apparent to institute at once restraints on propensities which, exhibited in speed and recklessness by the irresponsible, are getting out of control.

Traffic magistrates, by heavy fines and jail sentences to habitual offenders, can cooperate in changing conditions that are becoming intolerable.

A. C. NEEDLES

ARTHUR CHASE NEEDLES.

President of the Norfolk & Western Railway, passed away at his home in Roanoke, Va., on October 25, after more than fifty years of activity in the railroad field. He was 69 years of age.

As an outstanding figure in the railroad industry of America, he will be greatly missed. Singularly successful as the head of a great railroad, with an uninterrupted career of profitable management for its stockholders in good times and bad times, he will be missed not only by those most closely associated with him in his daily life, but by the operatives from one end of the line to the other, scores of whom he had gone along with through the years. He was regarded as of their own kind, because he came up from the ranks and knew them individually, as well as their work from his own experience.

He told this writer once of his full understanding of the labor performed by employees in the practical operation of a railroad. A. C. Needles started as a brakeman, and in relating some of the things that impressed him in his early life he recalled his thoughts upon a cold night in winter while coupling cars in a driving sleet storm when, contrasting with conditions outside the comfort in which passengers at their ease were housed in Pullmans, he wondered if thought was being given to the men who made their safe travel possible.

He would not be moved from the office he had occupied for years in Roanoke when a modern commodious structure was necessary to accommodate the road's larger force of executives and clerks. He preferred his quarters in the old building because he liked to be close to the trains coming and going in the station, and to wave a greeting and good-bye to the engineers.

A kind man—beloved for his human qualities and admired for his decisiveness and ability to meet problems arising in connection with the operation of a great business enterprise. His life was an exemplification of the opportunity before the youth of America.

THE ROBINSON-PATMAN LAW

PROBABLY no recent legislation has aroused more questioning and confusion than the Robinson-Patman law which confronts business with another effort of government to regulate and interfere in the conduct of private enterprise.

It is believed by many it will not meet a test of constitutionality. Whether this is correct or not, it invites litigation and is creating uncertainty about a future course of procedure on the part of business. Restrictions apply to practices that have been built up over a period of years, and there are new regulations of business conduct that create doubt about proper procedure.

Manufacturers find the measure ambiguous. So much so that they have not been able to interpret its intent or decide whether they can sell to a wholesale concern at a price below that which they sell to retailers.

There is a great deal of wishful thinking about the act, according to Gilbert H. Montague, of the New York Bar, and chairman Committee on Federal Trade Commission and Anti-Trust Law of the Merchants Association of New York. Speaking before the recent Boston conference on distribution, he said:

"Before it can be assumed that any particular transaction is or is not a violation of the Act, there must be an investigation of that particular transaction, which may involve intensive and protracted research into sharply disputed facts, requiring hair-line balancing of strictly conflicting consideration of public policy.

"In advance of such an investigation, no one can assume that any particular transaction is or is not a violation of the Act.

"One may therefore discount, as being wishful thinking, statements, especially those of producers, processors and manufacturers primarily interested in selling, which broadly imply that the only safe way to avoid violations of this Act is to make all prices, terms, discounts, services and facilities available to all customers.

"A speculation far greater than any prescribed by NRA has been interjected into business.

"Unlike NRA, the Act carries the peril not only of criminal prosecution and injunction suits by the Attorney General, and of 'cease and desist' proceedings by the Federal Trade Commission, but also the incalculably greater financial peril of suits for three-fold damages by injured customers from whom a seller has withheld some price differential or some service payment to which the customer would be entitled under this Act, in which the damages generally can be easily proved and readily measured as three times the price differential or service payment withheld, plus three times any other provable injury, plus interest, plus an attorney's fee.

"How to chart one's course, as not to be penalized if the Robinson-Patman Act shall turn out to be constitutional and enforceable, and so as not to be competitively handicapped if the Act shall be found to be unconstitutional and unenforceable, is fast becoming a tremendous gamble in scores of industries."

The new law is not intended to regiment all industrial activities and prices. It requires, upon request, an accounting of price differentials granted to certain customers and refused to others. A company must first have complete data covering all details of its affairs, and records that sufficed previously may not now be adequate. Perhaps the law will hasten better accounting methods and revised cost finding systems.

The trend of manufacturing is to decentralize. Branch plants are being established at strategic points.

Many independent factories supply raw materials or parts under contract to larger plants. The Robinson-Patman law may cause large buyers to enlarge subsidiary plants and build new ones to make accessories they now buy, if purchases from independent concerns cannot be made at a price level necessary to maintain a competitive position.

Assuming that the purpose is to be helpful to business, it is clear that in many respects, as at present drawn, the Act tends to defeat its objective.

CAUSE AND EFFECT

WALTER PARKER, the Economist, says in another column of the MANUFACTURERS RECORD—"Once upon a time, statesmen, rather than politicians, shaped the policies of the country. Politicians now do that."

Because of our complacency, politicians have undoubtedly "become stronger and stronger." All of this, as Mr. Parker points out, applies equally to Democrats and Republicans. "The effect is the same, no matter which party holds power," until "the problem has now become one of economics and the cost of government has become a factor and a serious factor."

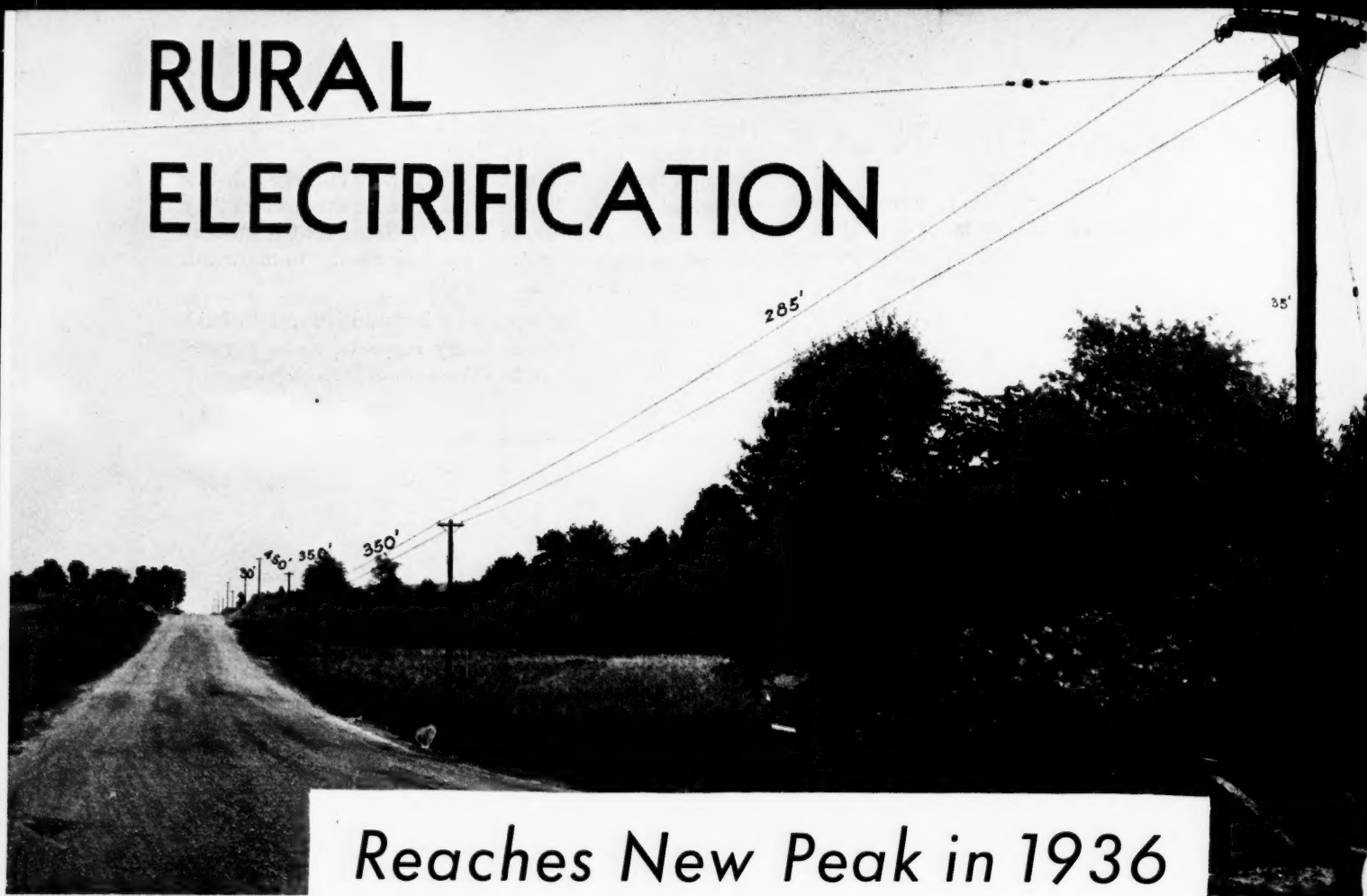
The MANUFACTURERS RECORD has believed in the application of taxes over as broad a base as possible to bring home to every citizen the interest he should have in the affairs of government, and that the taxing power, with the growing burden it lays on, should be in the hands of men who think solely of the country's good.

A great many of our states are unable to carry the load placed upon them by the cost of an endless procession of jobholders. There is waste and extravagance in overlapping of unnecessary operating units to such degree that protests are heard from one end of the land to the other about the rise of cost in government.

Mr. Parker starts with the highest office in the land and repeats a thought frequently advanced, that the President should be eligible for office for only a single term. The question persists as to the advisability of any man, from the President down, being elected for more than a single term. If this was carried out, executives and elected public officials would be freed from selfish considerations and be enabled to give their time and thought to a larger degree to what is best for their constituents and the country.

He goes further in his advocacy of what is in the minds of a great many, that paid employees of the government should be regarded as employees and not political henchmen, and therefore should be denied the right to participate in politics or even to vote. Certainly it is true "were all those on the dole or on pension treated as wards of government, to be taken care of, but denied the right to vote, the self supporting electorate would be far better able to steer the course of government in paths of virtue and sound economics than it can do now."

RURAL ELECTRIFICATION



Reaches New Peak in 1936

South Is Spending Over \$25,000,000 on New Projects and Appliances in Constructing Over 7,000 Miles of Rural Lines to Serve Over 40,000 New Customers

A NEW peak in rural electrification activity is being reached this year. Following an increase of approximately 175 per cent in the number of American farms electrified during 1935, compared with the previous year, it is estimated that a gain of more than 50 per cent in rural line construction will be made in 1936. About 860,000 farms now receive central station electric service.

Approximately \$80,000,000 will be invested in rural line extension work by private utility companies of the United States in the two-year period 1935-36, about \$50,000,000 of which will be spent this year. Another \$80,000,000 is being invested in farm wiring and appliances. The total in excess of \$160,000,000 for this development and allied services, will benefit agriculture, labor and industry. A substantial part will be spent with local contractors, plumbing and electrical firms, equipment and appliance manufacturers and dealers.

Rural Line Development in the South

In the Southern States there will be constructed this year more than 7,000 miles of rural electric lines at an estimated cost of about \$10,000,000 to serve over 40,000 new rural customers. Additional expenditures for wiring equipment and appliances for this new service will bring the total invested to more than \$25,000,000.

Of the 3,689,996 farms in the 16 Southern states, almost half the total number of farms in the United States, 149,762 farms on July 1, 1936, had central station

electric service, or 4 per cent. The average is somewhat better in the United States as a whole since about 12.6 per cent of all American farms have electricity.

Development by Private Utilities

The impressive work of the private

power companies is outlined in the following: With the six subsidiaries in the South of the Commonwealth & Southern Corporation building at the rate of about 300 miles of rural electric lines per month, their 1936 program involves projects costing in the aggregate \$2,995,000.

On June 1, projects totaling \$933,000, were completed, about \$833,000 of projects were under way, and the additional amount for proposed construction was about \$1,229,000.

Individually, these companies

Projected for Year 1936

Company	No. Farms	Miles Line	Amount	Amount Completed 5 Months ending May 31st	Amount Under way June 1st	Additional Amount Proposed
Tennessee Electric Power Co.	1,780	356	\$435,000	\$113,583	\$175,353	\$146,064
Alabama Power Company	4,578	945	1,132,366	434,074	241,826	456,366
Georgia Power Company	5,000	1,000	1,261,733	333,454	360,586	567,693
Gulf Power Company	180	31	39,763	9,894	10,700	19,169
Mississippi Power Company	150	30	36,387	12,693	13,300	10,394
South Carolina Power Co.	320	100	89,890	29,794	30,586	29,510
Total	12,008	2,462	\$2,995,139	\$933,492	\$832,451	\$1,229,196

have been steadily enlarging their program to meet changing conditions and increased demand for rural electric service.

Alabama Power Company's 1936 Construction Program

In 1935, the Alabama Power Company, Birmingham, continued its long established policy of building rural lines to provide electric service to farms and other rural customers. During the year, approximately 286 miles of rural lines were built to serve 978 new customers, involving an investment of about \$400,000. Most of the materials used in those lines were produced in the South and represented an expenditure in excess of \$250,000. Payrolls exceeded \$100,000. The addition of nearly 700 new customers to existing rural lines involved an expenditure of approximately \$100,000, a substantial proportion of which went into payrolls.

A twelve months summary, on September 16, of the company's rural line construction program shows that the company has completed the construction of 220 rural lines, a total of 882 miles to serve 4,280 rural customers in 52 counties of the State. In the construction of those lines, labor of the local communities has been employed to dig the holes, clear the rights-of-way, and for such other labor as does not require skilled workmen. Local electricians in the communities have found employment in wiring the homes and dealers in the towns near those communities have sold the materials for wiring, fixtures and appliances.

The materials for constructing the lines have been purchased from dealers and manufacturers of the State, increasing business for the creosote plants and manufacturers of line materials.

At the present time the company has under construction 41 additional rural lines with a total of 232 miles to serve 963 rural customers. Thus, the company is continuing its policy and effort to expand its electric system to serve additional customers throughout the entire area served by the Company.

The Company now has 2,769 miles of rural lines in 65 of the 67 counties of the State, serving 12,221 farm customers. In addition thereto, the Company is serving approximately 30,000 customers in small towns and communities that are classed as rural by the Bureau of Census.

The 1936 construction program for the Alabama Power Co. is approximately \$2,700,000. Except for rural line extensions, this does not include any especially large individual items, but a number of improvements and additions to the generating, transmission and distributing facilities of the company. These are dictated by increase in load and number of customers, and the policy of improving and safeguarding the service.

The Alabama Power Company was one of the pioneers in serving rural communities, this being due to the essentially agricultural character of most of its territory. Attractive rural rates were made available years ago and specialists in securing and developing rural business have been maintained in the field for years.

The Company has been endeavoring to meet the increased demand for rural electrical service by augmenting its staff of rural engineers, new business representatives, design engineers, and construction men. Rates have been reduced, and specifications studied and revised to make possible the greatest mileage of adequate line for a given appropriation.

Most of the rural lines being built are of the long-span common-neutral type, with very little secondary construction, and located on private right-of-way immediately adjacent to highways. They are not designed for minimum rural use, but have sufficient capacity for greatly increased sales to rural customers.

Georgia Power Plans 3,000 Miles of Rural Lines

The Georgia Power Company, Atlanta, in a three-year

Extent of Rural Electrification in Southern States

State	Farms Served July 1, 1935	Farms Served July 1, 1936
Alabama	273,455	13,859
Arkansas	253,013	3,900
Florida	72,857	7,799
Georgia	250,544	7,434
Kentucky	278,298	9,102
Louisiana	170,216	3,782
Maryland*	44,501	8,371
Mississippi	311,683	3,446
Missouri	278,454	19,168
North Carolina	300,967	12,343
Oklahoma	213,325	6,061
South Carolina	165,504	5,118
Tennessee	273,783	11,975
Texas	501,017	13,812
Virginia	197,632	16,556
West Virginia	104,747	7,036
South	3,689,996	149,762
United States	6,812,350	860,038

*Includes District of Columbia, which reported 89 farms in 1935.

program, will construct 3,000 miles of rural electric lines to serve 15,000 new customers in rural districts and in towns of less than 1,000 population, which are classed as rural under the company's present definition.

The program for 1936 calls for the construction of 1,026 miles of rural lines to serve approximately 5,000 customers. To July 1 this year, 261 miles of line were completed to serve 1,328 new customers. An additional 552 miles for serving 3,006 consumers are now under construction, or have been approved for immediate construction. Surveys and investigations are now in progress on the remaining 213 miles of lines.

With the completion of the three-year program, the company's present total of

2,258 miles of rural distribution lines, serving 30,176 customers on farms and in rural communities, will be increased to 5,300 miles to serve 45,000 customers.

As indicative of the rapid change in the situation, which is practically experienced by all power lines in the South, the Georgia Power Company revised its January program, which more than doubled the mileage to be built and doubled the number of customers to be served.

In addition to the Georgia Power Company's investment of \$4,000,000 in construction work, the company estimates that the addition of 15,000 new electric consumers will open up a large market for other types of business. Electric wiring for homes will require the expenditure of \$1,250,000; new consumers will invest another \$1,250,000 in household appliances; thousands of dollars will be spent for plumbing fixtures as electric service brings running water for the first time. All rural line construction work will be done by the Georgia Power Company.

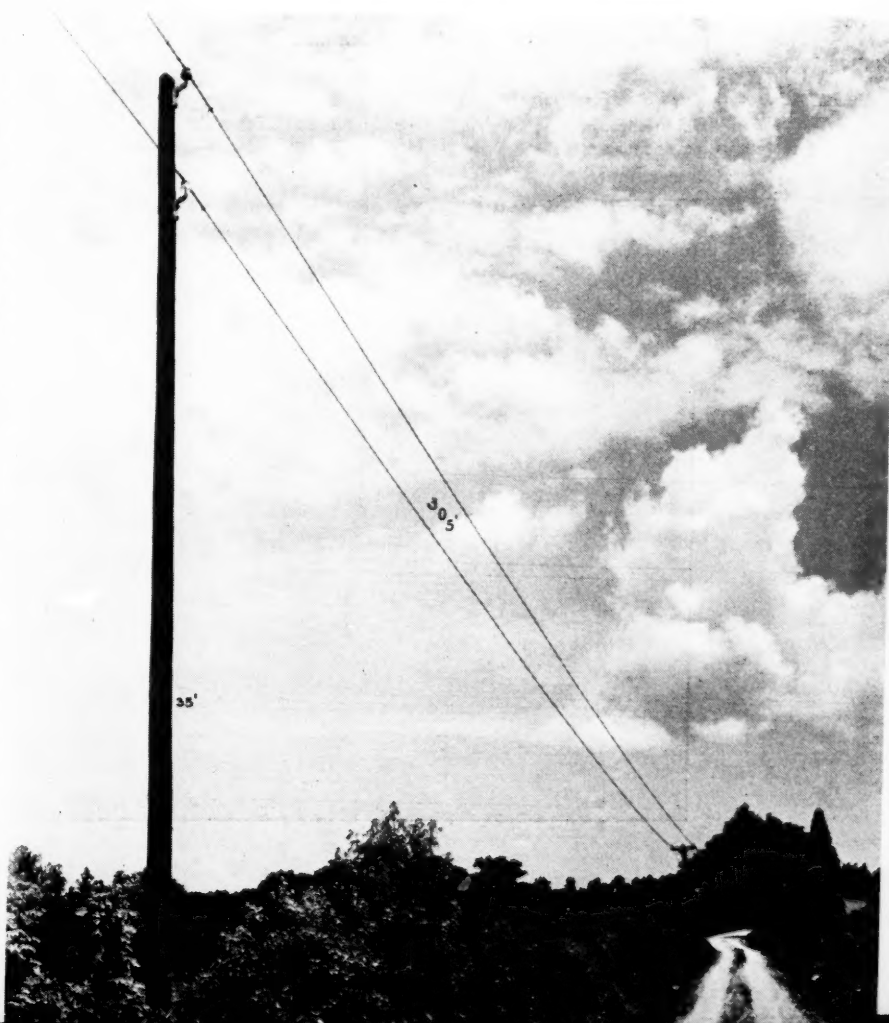
70 Miles of Line in Savannah Electric Territory

The Savannah Electric and Power Company, which completed 12 miles of rural lines in 1935 expects to build 66.9 miles at cost of \$98,100 to serve 311 customers this year. About 2 miles of line have been completed, 22 miles under construction, and 43 miles of new line are in prospect.

Florida Power Plans 185 Miles of Line

The rural program of the Florida Power Corporation, St. Petersburg, Fla., for 1936 covers 185 miles of line to serve 455 prospects, at an estimated cost of \$164,500, in 21 major extension projects

Low Cost Type Rural Line Construction



in 12 West and North Florida counties. Minor extensions not included in the foregoing include about 25 miles of line to serve 90 customers at a cost of \$20,000. Principal features of 30 miles of line under construction are the use of high strength conductor and 600 foot span lengths; elimination of cross arms on single phase lines; general use of common neutral conductor; simplification of pole structure; and the use of relatively high insulation under hot conductors. Most lines are operated at 6900-11950 Y volts.

Virginia Electric Building 600 Miles of Lines

The Virginia Electric and Power Company, Richmond, has scheduled for construction about 600 miles of line to cost \$723,000 to serve 2,868 customers. About 151 miles of lines were authorized or under construction on July 7. Activity will proceed as the Company is able to obtain necessary minimum monthly contracts amounting to 1½ per cent of the cost of the line. Under this plan and due to lower line construction costs, the Company has been able to reach out into areas hitherto unserved.

The electric rates are the same in rural as in urban areas and are of a strongly promotional character so that the additional use of electricity costs comparatively little.

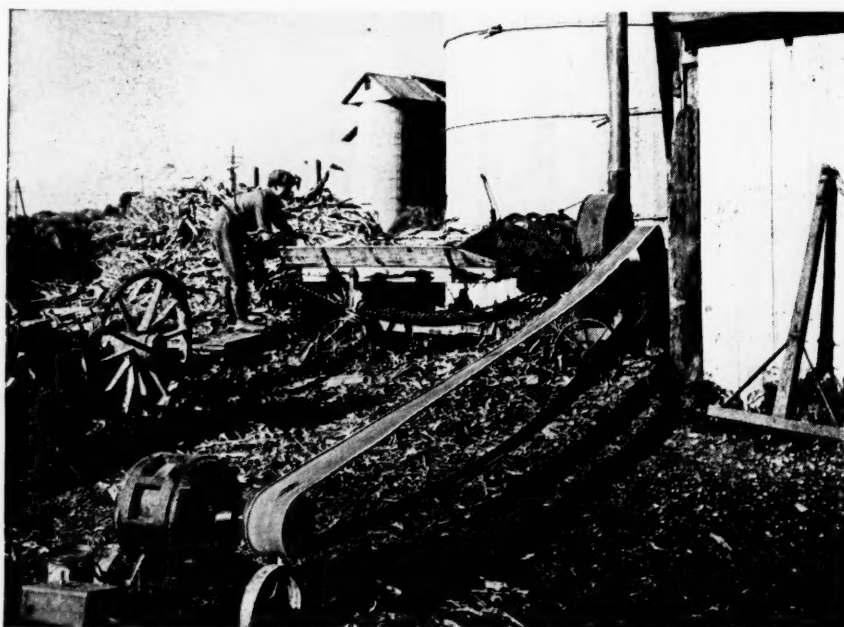
A staff of graduate agricultural engineers is maintained to handle the rural electrification work and advise the rural people concerning electrical equipment best suited for their needs. Overselling is avoided, if possible, and the effort is made to obtain a sound, steady increase in the use of electricity on the farm and in rural homes.

Standard Gas and Electric Planned 1,103 Miles New Line

The Louisville Gas and Electric and the Oklahoma Gas and Electric companies are subsidiaries of the Standard

Electricity on the Farm

Filling silos, cutting feed, grinding, fruit grading, pumping water, milking and cooking are among its uses other than lighting.



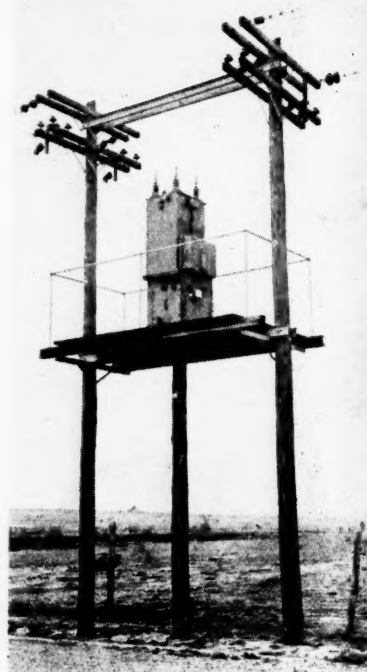
Gas and Electric System which also operates outside of the South. The Companies of the System planned to construct 1,103 miles of rural electric lines to cost \$1,544,956 in 1936. This is expected to add 4,169 new rural customers and it is anticipated that 2,098 new customers may be added during the year to lines in existence. The expenditures of the 6,267 rural customers in 1936 will be about \$602,013 for wiring and \$748,769 for electrical appliances, based upon surveys made in advance. The Companies in the Standard System have been actively encouraging new rural electrification for years, and many territories are now highly developed.

Kentucky Adds 250 Miles Rural Lines

More than 46 miles of rural electric lines at a cost of \$65,018 are being constructed this year by the Kentucky Utilities Company, Lexington. These lines serve not only farmers but such industries as coal mines, distilleries and small communities heretofore without electricity. In addition there is under construction a 66 KV, three phase transmission line between Williamsburg and Anchor, Ky. The line will be "H" construction, using class 3 Western Red Cedar poles and 3/0 A.C.S.R. conductors. The line will be approximately 17 miles long. When completed it will form a double circuit between the Pineville Steam Plant and the Dix Dam hydro plant. A 7500 KVA, 66/13.8 KV transformer bank will be installed in the Pineville Power plant substation to increase the transmitting capacity.

The Louisville Gas and Electric Company, Louisville, Ky., is extending rural lines at the rate of about 12 or 15 miles per month and are financing these extensions without assistance from Government agencies. It is the policy of the Company to build rural lines where it can be assured of revenue amounting to at least \$25 per mile per month.

Other rural line extensions underway in Kentucky include 34.7 miles to cost \$65,167 by the Kentucky Rural Electrification Co. to serve 480 customers, and a 50 mile line built at cost of \$50,000 by the Rural Electric Company to serve 202 customers.



Regulator Equipment on Rural Line

130 Miles of Lines in Maryland and West Virginia

After completing 60.5 miles of rural lines at cost of \$118,474 in 1935, the Monongahela West Penn Public Service Company, Fairmont, W. Va., built or authorized 68.3 miles at cost of \$136,743 for the first half of 1936 in one county each in Maryland and Ohio and 29 West Virginia counties. Estimated expenditures for the second half of 1936 include 72.7 miles at cost of \$145,000 for work in 29 counties of West Virginia.

105 Miles of Line in Baltimore Rural Area

Approximately 46 miles of rural line extensions to serve 435 customers were undertaken up to June 18 by the Consolidated Gas Electric Light and Power Company of Baltimore with 60 miles to be built. The company has covered its rural territory so thoroughly with trunk lines that there is little left but to make short extensions where required by rural customers, the average length being one-quarter of a mile, the longest 6 miles.

Arkansas Power Has 26 Projects

In 1935, the Arkansas Power & Light Company, Pine Bluff, completed 73 of the new type rural line projects ranging in length from 2/10 of a mile to 10½ miles, the aggregate being 328 at a cost of \$205,540. They served 1212 customers. In 1936, the Company completed, or has under construction, a total of 27 projects, aggregating 145 miles of lines. They range from one mile to 23 miles, and will serve 828 customers. When completed the total cost will be \$102,270.

Before undertaking the rural electrification program in 1935 the Company was already serving many farms, rural homes and small villages. The lines built in 1935 and 1936 extended into sections remote from power lines and somewhat isolated. The only way it could

reach these communities was through the development of the new type line under which the cost, as compared with standard type line, was decreased 40 to 50 per cent. In the development of this line the Company's engineers had the cooperation of companies which supply poles, conductors and transformers.

When President Harvey C. Couch launched the program with the public early in 1935, he asked for and secured committees in each community to assist in obtaining customers and rights-of-way. Another feature of the program was the employment in construction of the lines of customers who desired to earn enough money to wire their homes and purchase some appliances. This proved attractive to farmers served by the lines. Rates for rural service are the same in so far as energy charge is concerned, the readiness-to-serve charge being slightly higher than in communities with 100 customers. Farmers have not been asked to pay for any part of the line except in some cases where it was necessary to build more miles of line to reach one customer than would bring the total to more than one mile for each four customers.

Oklahoma Gas Adds 100 Miles New Lines

With 336 miles of rural electric line extensions completed in 1935 in Oklahoma and Arkansas by the Oklahoma Gas and Electric Company, Oklahoma City, approximately 100 miles at cost of \$106,239, were added in 1936. In the two-year period more than 4,000 rural customers have been added.

In general, the rural extension policy of the Company provides for the construction of one-half mile of line and a transformer, plus 100 feet of service on the property for each customer who must supply the Company with a cleared right-of-way for the construction. The monthly minimum bill for service to each customer is determined by the line density, or the number of customers per mile of line.

Southwestern Gas Builds 111 Miles of Line

The Southwestern Gas and Electric Company, Shreveport, La., has completed approximately half of 111 miles of rural lines at cost of \$97,000 in East Texas and at Texarkana, and Fayetteville, Ark., and Shreveport, La., to serve 691 customers. In 1935 the Company completed 32 miles of line to serve 215 customers at cost of \$29,950.

Duke Power Operates 3,471 Miles of Rural Lines

With the Duke Power Company, Charlotte, N. C., building 446.5 miles of rural lines in 1935 which made electric service available to 3,089 new customers, the Company on January 1, 1936, was operating 3,471.7 miles of lines serving a total of 26,291 rural customers. Of this total 11,605 are farmers, including 469 dairy farms, and an additional 11,269 residential non-farmers. There are 3,177 commercial customers, including stores, filling stations, etc., on these lines as well as cotton gins, saw mills, and other power customers.

(Continued on page 68)

REA Projects in the South to October 7, 1936

State and Sponsor	Amount	Miles	Farms	Status
ALABAMA				
Clarke-Washington Co. Power Assn., Inc., c/o State REA, Montgomery, Ala.	\$65,000	58.4	267	Contract signed.
City of Athens	65,400	65.5	270	Allotment approved.
Cullman County E. Corp.	105,000	105.5	575	Approved.
ARKANSAS				
Rural Power & Light Co., Osceola, Ark.	5,400	16	74	Allotment approved; rest of construction to be financed by borrower.
The Rural Electric Co., Calico, Ark.	38,500	32	248	Allotment approved.
FLORIDA				
Florida Power Corp., St. Petersburg, Fla.	164,500	184.5	575	Contract signed; force account.
Florida Public Service Co., Orlando, Fla. ...	48,500	59.5	241	Allotment approved.
GEORGIA				
Crisp Co. Farmers Cooperative Corp., Cordele	60,000	60	200	Allotment approved.
Georgia Power & Light Co., Valdosta, Ga.	109,200	99.1	663	Contract signed; force account.
Rayle Electric Assn., Rayle, Ga.	12,000	11.2	53	Contract signed.
No. Georgia Electric Membership Corp., Dalton, Ga.	375,000	357	2,503	Allotment approved.
Troup Rural Electrification Corp., LaGrange.	74,000	76.7	394	Allotment approved.
Toombs Co. R. E. System, Lyons, Ga.	53,000	50	208	Allotment approved.
Snapping Shoals Power & Light Co., Covington	90,000	75	500	Allotment approved.
New Deal Power Assn., ...	83,000	75	357	Allotment approved.
Colquitt County R. E. Co.	275,000	260	1,040	Allotment approved.
Carroll County Co-op. ...	118,000	107	536	Allotment approved.
Walton Agl. Assn.	90,000	80	360	Allotment approved.
Douglas County E. Com.	83,000	83	320	Allotment approved.
KENTUCKY				
Kentucky Rural Elec. Co., Louisville, Ky.	71,700	38.7	291	Industrial Electric Co., New Orleans, La., construction contract for 12.56 miles.
Henderson Co. R. E. Assn., Henderson, Ky.	190,000	153	1,193	Allotment approved.
Columbus L. & P. Co. ...	6,800	7	60	Allotment approved.
MARYLAND				
St. Mary's County Co-op.	35,000	30	150	Allotment approved.
MISSISSIPPI				
Monroe County Elec. Assn., Amory, Miss. ...	81,000	55.3	361	R. H. Bouligny, Inc., Charlotte, N. C. has construction contract for 55.3 miles.
City Holly Springs	70,600	59	270	Allotment approved.
MISSOURI				
Marion County E. Corp.	330,000	320	1,000	Loan contract made.
Lewis County Elec. Corp.	235,000	225	813	Loan contract made.
Boone County E. Co-op. ...	133,000	127	478	Allotment approved.
Callaway County E. Co-op.	120,000	110	334	Allotment approved.
Ralls County Co-op.	317,000	300	973	Allotment approved.
Missouri Gen. Util. Co.	112,000	127	613	Allotment approved.
Andrews County Co-op.	195,000	195	585	Allotment approved.
NORTH CAROLINA				
Tide Water Power Co., Wilmington, N. C.	142,250	128	1,000	Contract signed; force account.
Wilson County Electric Membership Corp., Wilson, N. C.	161,000	129	658	Contract signed.
Johnston Co., EMC, c/o N. C. REA, Raleigh ...	80,000	76	396	Initial allotment approved.
Edgecombe EMC, Tarboro, N. C.	32,000	35	163	Allotment approved.
Johnson County E. Corp.	310,000	295	1,535	Approved.
Glenview Co-op.	16,000	16	57	Allotment approved.
Caldwell County Co-op.	430,000	394	2,160	Allotment approved.
Franklin County E. M. Corp.	123,000	123	350	Allotment approved.
OKLAHOMA				
Earl W. Baker Utilities Co., Bethany, Okla. ...	40,000	51	160	Construction approved.
Wolverton Bros. Lt. & Pr. Co., Lawton, Okla. ...	40,000	51	160	Second allotment approved.
Consumers Rural P. C. ...	60,000	85	200	Allotment approved.
300,000	335	890	Allotment approved.	
SOUTH CAROLINA				
State REA, 1412 Laurel St., Columbia, S. C. ...	542,328	511	2,128	W. E. Callahan Co., Dallas, Tex., has construction contract for 165 miles.
Greenwood County Finance Board, Greenwood, S. C.	106,000	96	420	Allotment approved.
TENNESSEE				
City of Dayton, Tenn. ...	38,058	38.9	215	Construction completed.
Meigs Co. EM Corp., Decatur, Tenn.	10,000	11.3	53	Second allotment approved.
92,200	78.6	545	Harrison Wright Co., Charlotte, N. C. has construction contract.	
120,000	122.4	734	Second contract signed.	
254,000	261	1,084	Approved.	
335,000	311	1,231	Allotment approved.	
TEXAS				
Bartlett Community Light & Power Co., Bartlett, Tex.	33,000	30	110	Construction completed.
3,000	8	20	Second contract signed.	
East Texas Utility Corp., Tyler, Tex.	214,000	254	1,460	Allotment approved.
Belfalls Light & Power Co., Bartlett, Tex. ...	452,000	300	1,200	Allotment approved.
240,000	240	750	Allotment approved.	
Central Texas Power Co.	400,000	300	1,260	Allotment approved.
Hill County E. Co.	400,000	300	1,260	Harrison Wright Co., Charlotte, N. C. has construction contract for 64 miles.
VIRGINIA				
Farmers Rural Utilities, Inc., Bowling Green ...	366,800	406	1,511	Allotment approved.
Virginia East Coast Utilities, Inc., Richmond.	125,000	93	570	Allotment approved.
Shenandoah Valley E. Corp.	125,000	125	543	Loan contract made.
Bull Run P. Co.	50,000	22	119	Allotment approved.
Va. Pub. Service Co.	300,000	300	1,000	Allotment approved.
Total	\$9,332,236	8,828.6	39,287	

Evolution No Theory IN THE PETROLEUM INDUSTRY

A Game Develops Into A Science

Revolutionary Developments in Production Methods Aid Conservation
Technological Advances in Refining Operations Increase Yield Per Barrel
Transportation, Distribution and Marketing Claim Industry's Attention
Maintaining Balance Between Supply and Demand Held Key to Stability
Mounting Taxes Declared Deterrent to Recovery of Petroleum Industry

ONCE there was an "oil game." Today there is a "petroleum business." Actually we are moving toward a "petroleum science." This illustrates the changes which have come in a short space of time to one of the most important branches of the nation's business.

Mark Twain once defined an oil well as "a hole in the ground owned by a liar." Today every step in the process of deciding where to drill a well, then actually drilling it, producing oil from it and refining that oil has become a highly technical process. The gambling element which consisted in a man betting all he had or could borrow that there might be oil some hundreds or thousands of feet beneath the surface has largely vanished.

The petroleum industry uses scientific equipment and requires the assistance of highly trained technical experts.

As a result of these developments in the petroleum industry, important new oil deposits are being located. New fields are being more economically produced. Old fields are rejuvenated. The tragic waste, both of enormous quantities of gas and large amounts of petroleum, is being reduced to a minimum, while improved methods at refineries make possible the utilization of higher percentages of the recovered petroleum.

Advances in Production Methods

THE strides which have been made in production methods are probably more notable than in any other branch of the industry. Especially valuable have been the geophysical tests. By this method a reasonably accurate outline of the various underground struc-

By
Chas. F. Roeser,
President,
Independent Petroleum Association
of America

tures may be had before the actual work of well drilling begins. During 1935, it has been estimated, the industry spent \$18,000,000 in geophysical tests. That

CHARLES F. ROESER, president of Roeser & Pendleton, Inc., and vice president of Hope Oil & Gas Co., Fort Worth, Tex., has been active in civic and business organizations for many years. He was vice president (Division of Production), American Petroleum Institute, 1932-34; president, Independent Petroleum Association of America, 1936, and member of the Advisory Board to the United States Bureau of Mines, and Chairman of the Committee on Petroleum and Gas Problems, 1936. He is director of Roeser & Pendleton, Inc., Hope Oil & Gas Co., Continental National Bank of Fort Worth, and Fort Worth Chamber of Commerce.



suggests the importance which it places upon this method of defining structural limits and depths. Through the use of this method, petroleum deposits which lie beneath the bottom of the Gulf of Mexico and the Pacific Ocean have been positively located.

When structures have been outlined by geologists and geophysicists, unitization of the prospective areas is often put into effect, thus conserving the oil these areas contain, avoiding unnecessary drilling and making possible larger ultimate recovery in many cases.

Better equipment for drilling has replaced the old primitive methods which were slow and costly and which would have been of little value in penetrating to the depths to which the prospector today must often go to find the pay sands. The shallow wells of yesterday are being replaced by wells which go down to depths as great as 10,000 feet. Many of the old shallow fields are being successfully redrilled to lower new producing horizons. Bottom pumps aid in bringing to the surface the oil from many of these deep-driven holes in the ground.

Wells whose production had fallen below the economic production point are now being given new life by various methods undreamed of a few years ago. Some old sands are reflooded. Gas and air drives are being used in many fields. For some time gas from the wells has been returned to the sands instead of being burned or turned loose in the air, thus adding to the life of the fields.

By directional well drilling, the producer today is enabled to choose the surface location of his well and at the same time economically reach sands which a straight-driven well might only have touched after costly drilling through unfavorable surface strata.

As a result of these and other improvements in production methods, 1935 showed a gain in production over 1934 amounting to 87,516,552 barrels, while

15,108 wells completed in 1935 were producers.

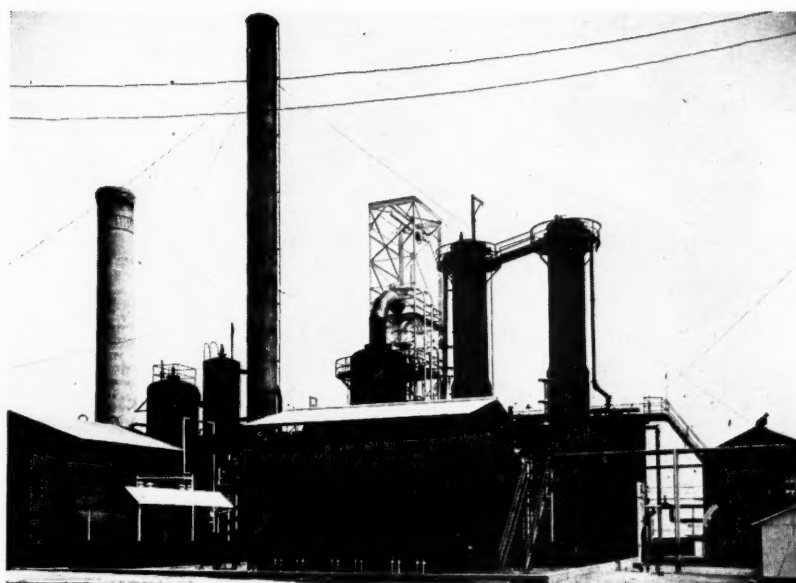
Refinery Advances

WHILE the number of refineries in the country has been decreasing, their output and their utilization of crude have both been increasing. In part, the reduction in the number of refineries has been due to the disappearance of much of the "hot oil" previously available at low prices in the East Texas area. Many small skimming plants which formerly operated there have been discontinued through enforcement of the law.

On the other hand, refining operations have been so improved by technological advances that poorly equipped refineries have been unable to compete with plants using modern methods and obtaining larger yields of the more valuable and "wanted" products from each barrel of oil.

Among the new processes, polymerization is notable. Through this method

valuable volatile elements in the petroleum are being rescued. This means



Modernized Southwestern Refining Unit

Lion Oil Refining Co., El Dorado, Ark., recently completed conversion of a pipestill into a combination topping and vacuum reducing unit for the manufacture of asphalt

South's Important Stake In Oil

ESTIMATED known oil reserves of the United States are nearly 13,000,000,000 barrels with the Mid-Continent and Gulf Coast fields having about 8,950,000,000 barrels. Half of the nation's known petroleum reserves are in Texas.

In 1935, the investment of the petroleum industry was approximately \$13,500,000,000.

More than 148,000 producing oil and gas wells, 44 per cent of the country's total, are in the Southern States. New wells are being drilled in the South at the rate of over 10,500 a year.

The South produced 646,489,000 barrels of petroleum, 65 per cent of the country's total output in 1935, and about 42 per cent of the world's production.

The South is producing over 1,241,000,000 cubic feet of natural gas, about 70 per cent of the country's total output, and is consuming over 1,042,000,000 cubic feet of natural gas each year.

Petroleum refineries numbering 322, with a total capacity of 1,858,000 barrels a day, are located in the South, representing about half of the established plants and 45 per cent of the nation's oil refining capacity.

With some of the world's largest refineries, virtually continuous modernization and expansion of existing refining and cracking plants and erection of new refineries, embodying the latest features of design, layout and improved equipment, are under way in the South.

Expansion of underground transportation systems for crude oil, refined products and natural gas in recent years, called for investments aggregating millions of dollars. More than \$10,000,000 was expended last year for additional pipe line facilities in the Southwest, to points of consumption in the fields, to refineries, or to distributing centers. Approximately 500 miles of oil and gas pipe lines are under construction or planned this year in Texas alone.

Bringing-in new oil fields in the Southern states this year has added substantially to the pipe line mileage. Millions of dollars are being invested in production, storage and transportation facilities in and from the fields, development of new ship and rail terminals, and in erection of bulk oil storage stations throughout the South.

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not merely larger returns to the oil industry but also a further postponement of that day when our oil reserves will begin to diminish. Through such processes as polymerization, hydrogenation, and others, the petroleum industry may soon take a boast similar to the packers when they declared that they use every portion of a pig except the squeal.

New cracking methods and the combination of crude distillation with the cracking unit greatly increase the yield per barrel.

Refiners and builders of automotive machinery are working in unusual harmony. The builders of airplanes, automobiles, motor boats, etc., are taking advantage of each new forward step taken by the petroleum industry while the industry itself is providing the automotive manufacturers with the finer fuels which those engineers desire.

Efficient Transportation

IN the transportation of petroleum and its products, notable progress has been made. The pipe lines now being built are much more efficient than their predecessors. Waste of oil in transit is greatly reduced.

The industry is also availing itself of improved types of tank cars, motor trucks and trailers and of better water transportation facilities. Tankers and barges are carrying increasing quantities of gasoline to specially-designed terminals built in communities along the seaboard and inland waterways. Trucks carry petroleum products over a territory often having a radius of 300 miles from such terminals. Likewise, bulk storage and distributing plants dot pipelines from refineries to consuming centers.

The Marketing Problem

THE marketing of products constitutes one of the most difficult problems which the petroleum industry has to solve.

Everybody admits that there are too many service stations. No one who has a service station seems willing to close it up in order to reduce that excess. New stations continue to be built.

The old time fight between various elements in the marketing division of the industry has known many armistices but no real peace. Until some compromises are reached which will be fairly satisfactory to both suppliers and dealers, both to lessor and lessee, to jobber and to retailer, the battle will probably continue. This, after all, is a natural out-

growth of the American competitive system.

The proposed code of fair practices which the industry has been discussing this year but which has not yet reached the Federal Trade Commission does not attempt and cannot attempt to go into some of the basic and decisive marketing problems.

The marketing issue is still further complicated by legislation which has been either adopted or proposed in various state legislatures and in Congress. Some of this legislation, especially directed against chain stores in order to favor small local enterprise, may give a new complexion to the problem of the service station. Just who will be helped and who will be harmed by such legislation is generally predicted by a multi-

tude of prophets whose forecasts seem to be inspired by their own interest or prejudice. Possibly the real truth will not come out except through experience.

The Problem of Balance

IMPORTANT as has been the solution of these various problems which have confronted the petroleum industry, the most significant of all has been the effort to balance supply with consumptive demand. This is basic to the welfare of the industry.

Through the stabilization of supply and demand which was approximated under the Petroleum Code, the price of crude oil was maintained at one dollar per barrel of 36 gravity Mid-Continent crude for nearly two years. After the expiration of NIRA, the price remained steady for a time and then slightly increased. When the comparative balance was disturbed by excessive imports and by overproduction, notably in the Rodessa field, expected price advances due to increased demand were not forthcoming.

The stabilization of supply with demand is important from the consumer's standpoint. The best authorities agree that the nation has sufficient petroleum reserves for a long period, provided that these are used properly. If they are wasted, then everybody concerned with the use of petroleum products must pay the penalty. When the price of these products is maintained at a fair level, then exploration and discovery of new oil fields are encouraged, these adding to the national wealth. When the price drops below the economic figure, then wildcatting and development decline.

Almost universally industry is dependent upon the petroleum industry since its products enter into so many manufacturing processes and into transportation. Conservation of our oil resources is therefore of vital importance. True conservation means keeping oil and gas in the ground until they are needed for use. It means conserving reservoir energy and prevention of evaporation.

One of the most important wastes which is now in process of elimination by the industry is in the gas produced, especially in the Panhandle fields. Enormous quantities of gas which were formerly burned or allowed to escape in that section are today being utilized. This problem has not yet been completely solved but is rapidly being met. What was once a waste is now an economic asset. The oil industry has learned that conservation is the surest road to security.

Since about half the states of the Union contain oil fields and since in many of these states production, processing and marketing of petroleum is one of the most important industries, much of the purchasing and consuming power of the

(Continued on page 74)

Representative Oil and Gas Activities

Representative projects recently completed, under way or planned are as follows:

- Atlantic Refining Co., Philadelphia, Pa.**
Acquired 111-acre site, Wilmington, N. C., for oil terminal; cost \$1,000,000.
- Petrol Refining Co., Corpus Christie, Tex.**
\$1,000,000 refinery.
- Carbide & Carbon Chemical Corp., Cattlettsburg, Ky.**
\$2,000,000 gas condensation plant.
- Union Carbide & Carbon Co., Houston, Tex.**
\$6,000,000 petroleum by-products plant.
- Freeman W. Burford, Dallas, Tex.**
\$1,500,000 gasoline pipe line.
- Corpus Christie Refining Corp., Corpus Christie, Tex.**
\$400,000 refinery expansion.
- Lion Oil Refining Co., El Dorado, Ark.**
\$150,000 lubricating oil plant.
- Coltex Corporation, Rodessa, La.**
\$300,000 gasoline plant.
- Barnsdall Refining Co., Tulsa, Okla.**
6,000-barrel combination topping, cracking and reforming unit at Barnsdall refinery.
- Phillips Petroleum Co., Tulsa, Okla.**
Natural gasoline extraction plant in Oklahoma City field.
- Pan-American Refining Co., Texas City, Tex.**
36,000-barrel combination topping and cracking unit being installed at one of the most modern refineries, only recently completed.
- Atlantic Refining Co., Philadelphia, Pa.**
New refinery at Atreco, Tex., with capacity 20,000 barrels crude oil daily; \$5,000,000.
- Magnolia Petroleum Co., Houston, Tex.**
32,000-barrel combination topping and cracking unit with stabilizer at Beaumont, Tex.; refinery; \$2,000,000. Revamping of existing cracking installation at Fort Worth, Tex., refinery.
- Pure Oil Co., Toledo, Ohio**
Expansion of Beaumont, Tex., Smith's Bluff refinery; \$2,500,000.
- Rodessa Gasoline Co., Shreveport, La.**
30,000,000 cu. ft. daily capacity gasoline extraction plant in the Rodessa field near Ida.
- United Gas System, New Orleans, La.**
Enlarging Myrtis (La.) gasoline absorption plant and gas booster station; \$1,200,000.
- Continental Oil Co., Ponca City, Okla.**
44-mi. pipe line from Tepetate oil field, Acadia Parish, Louisiana, to Lake Charles, La.
- Eastern Texas Petroleum Co., Dallas, Tex.**
55-mi. pipe line from Rodessa, La., to Longview, Tex.; \$400,000.
- Pelican Oil & Gas Co., Shreveport, La.**
Gasoline absorption plant in northwest Caddo Parish, Louisiana; \$200,000.
- Panama Refining Co., Overton, Tex.**
7,000-barrel daily capacity refinery in northwest Caddo Parish, Louisiana.
- Texas-Empire Pipe Line Co., Houston, Tex.**
Nine loops along its trunk pipe line from Sheldon, Mo., to Virginia, Ill., and also a 143-mi. extension westward from Sheldon, Mo., to Valley Center, Kansas; \$4,500,000.
- Manhattan Gasoline Co., Refugio, Tex.**
Low-pressure absorption type refinery near Sinton, Tex.
- Michigan Gas Transmission Co., Fort Wayne, Ind.**
230-mi. pipe line to connect main trunk lines from Texas gas fields with Detroit, Mich.; \$3,500,000.
- Shell Petroleum Co., St. Louis, Mo.**
Expansion Houston, Tex., refinery; \$4,000,000.
- Humble Oil & Refining Co., Houston, Tex.**
Expansion Bayton, Tex., refinery.
- Parade Gasoline Co., Shreveport, La.**
Gasoline absorption plant improvements, between London and Henderson, Tex.; \$500,000.
- Gulf Refining Co., Pittsburgh, Pa.**
Operating world's largest refinery at Port Arthur, Tex., is continually adding to its facilities, the most recent installation being an 8,000-barrel daily capacity absorption and stabilization unit and \$476,000 gasoline plant at Wickett, Tex.

DEVELOPS

New Frontiers

Modern Wood Reduction Plant at Columbia, Miss., Gives New Life to Forest Industry in That Locality

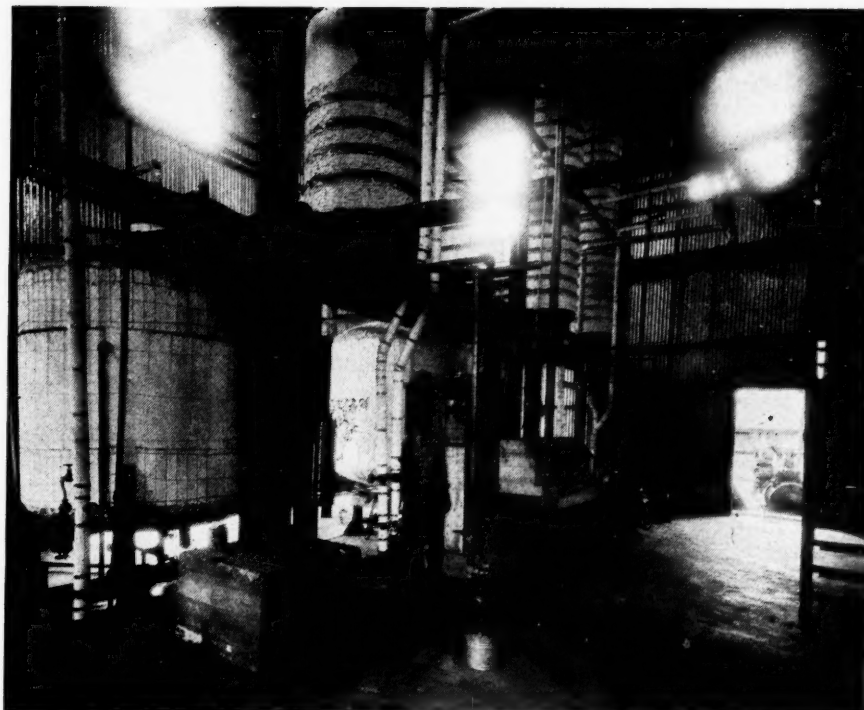
WHEN lumber manufacturing at Columbia, Miss., ceased to be the main activity, a new industry was established. It created employment and gave new life to the forest industry in that locality. The lumber operator responsible for the development was Hugh L. White who has become the Governor of Mississippi.

The lumber mill of the J. J. White Lumber Company at Columbia, was reorganized in October, 1935, as a wood reduction plant of the Southern Naval Stores Company. It occupies approximately 25 acres and is so built that capacity can be increased 50 per cent with little expense. Consumption of raw materials at the present time is 100 tons per day of pine stumps and top wood. Operation began April, 1936, and three days later it was up to full production. During the first month over 2,200 barrels of rosin were exported.

The plant has meant much to the diversification of industry in Columbia. At the present time approximately 100 men are employed in its operation and 125 men in the field, with 25 to 30 trucks hauling the raw material. Experienced chemists are kept on duty at all times to test products for purity. Present production is about 90 barrels of rosin and 1,400 gallons of turpentine and pine oil per day. The major part of the rosin exported is shipped from New Orleans, Gulfport and Mobile. Some turpentine and pine oil is exported but for the most part they are consumed by the domestic trade.

COLUMBIA business houses felt the stimulus of a large additional payroll. More unemployed were absorbed. And a more far-reaching benefit to the territory entered the picture.

In turning the cut-over lands to agriculture, farmers faced stump-filled fields, costly to clear. With the coming of the new wood reduction plant a market was created for the stumps which are being dynamited and hauled off the land; the farmers being actually paid for the ridance of these obstacles.



Interior of Refinery
Columbia Naval Stores Co., Columbia, Miss.

ALTHOUGH the Southern Naval Stores Co. has leased 75,000 acres of stumps, this supply remains as yet untouched and probably will continue so for a number of years, since there is no difficulty in procuring an ample supply from unleased farm lands.

Pine stumps that are left from virgin timber stay in the ground indefinitely and will never rot. When dynamited approximately eighteen inches below the ground, the soil becomes much better for farming and grazing purposes. No use has been found for these stumps except in wood reduction plants of this kind.

UPON taking over the old J. J. White plant, the Southern Naval Stores Company demolished the mill except for the eight boilers and a 759 kw. turbine. Upon the site of the sawmill, concrete and steel buildings have been erected, a mill house, an extractor house and a refinery. In the mill house a Jeffries shredder and a Diamond hog have been installed, the largest shredder and hog manufactured by these concerns.

The plant is motorized throughout. It is equipped with six 8½-ton extractors and three 1,800-gallon stills for refining turpentine and pine oil.

Buildings, condensers and tanks were bought from the Laurel Machine and Foundry Company of Laurel, Mississippi. Extractors, stills and evaporators were purchased through the Equitable Equipment Company of New Orleans.

The plant is completely equipped with copper and brass valves. Copper pipes, fittings, motors, belts and other machinery were bought through such concerns as: C. P. Patterson and Company, New Orleans, Louisiana; Denby Turner Company and Turner Supply Company,

Mobile, Alabama; Komp Equipment Company and P. and S. Supply Company, Hattiesburg, Mississippi.

STUMPS and top wood upon arriving at the plant are weighed on scales and bought by the ton. They then go into the hopper which leads to the hog. After passing through the hog, the material goes to the shredder where it is reduced to particles the size of oats. From there it goes into a 100-ton chip bin, and thence to the extractors where, by steam and solvent process, turpentine and pine oil are extracted in crude form, rosin being cut from the chip with naphtha.

The rosin goes through six large washers of an approximate 15,000 gallon capacity each, and from there to evaporators where it is completed. It is then taken to the rosin shed and put in steel drums or wooden barrels.

The turpentine and pine oil go into tanks for holding the crude product. It is brought back from there to stills, where it is refined under supervision of chemists. When ready, it goes to loading tanks and then either loaded into tank cars or galvanized drums for shipment.

Certain grades of pine oil flow through copper pipes to copper tanks, never being allowed to come in contact with iron.

Rosin for export is shipped in wooden barrels, while that for domestic consumption is placed in steel drums. The drums are bought knocked down and are assembled at the plant. The barrels are made in a stave mill which is operated in conjunction with the plant.

Officials and organizers associated with the Southern Naval Stores Company are: J. T. Latimer, president; R. F. Anderson, vice-president, and V. A. Anderson, secretary and treasurer. There are other stockholders.

R. F. Anderson and J. T. Latimer started in this line of business with Homer T. Yaryan of Yaryan Naval Stores, Gulfport, in 1909. Since that time they have built and helped build five wood reduction plants. There are only ten such plants in the United States.

\$100,000,000 FOR WATERWAYS AND HARBORS SOUTH

Modernization of Southern Ports Round Out Continued Improvement of Inland and Coastwise Routes

ADEQUATE maintenance and development of waterways and harbor facilities, as a link in the transportation systems of the country, are of particular concern to the South. Not only do the states from Maryland to Texas handle a large part of the inland and coastwise waterborne commerce of the nation, but one-quarter of the country's total foreign trade passes through Southern ports. Last year about 35 per cent of American exports and 13 per cent of all imports were handled by South Atlantic and Gulf ports.

Foreign trade through the South has shown an increase for the past three years in succession. The total for 1935 was \$1,087,000,000 as compared with \$985,000,000 in 1934, \$885,000,000 in 1933 and \$808,000,000 in 1932. Exports through the South were valued at \$804,460,000 in 1935, a gain of \$45,000,000, about 6 per cent, over 1934, and imports were \$282,571,000, a gain of \$56,000,000, or nearly 25 per cent over the preceding year.

Some of the important commodities making up the bulk of the country's sales abroad are chiefly the products of Southern factories, mines and farms. Included in the major items of export are cotton \$428,000,000; petroleum \$249,000,000; tobacco \$143,000,000; coal \$52,000,000; wood and products \$41,000,000; sulphur \$7,000,000; phosphate \$5,000,000; naval stores \$16,000,000, and fertilizer \$14,000,000.

With the South producing practically all of the country's cotton, 65 per cent of the domestic petroleum output, 93 per cent of the tobacco, 41 per cent of the coal, 43 per cent of the lumber, 70 per cent of the fertilizer, all of the sulphur and phosphate and naval stores and a large proportion of many other raw and finished products comprising the bulk of our sales to foreign countries, the Southern states are vitally concerned in maintaining and improving port facilities to adequately serve the nation's trade.

Modern Port Facilities

Continued waterway improvement has been under way with the result that many Southern ports now have most modern docks, warehouses and mechanical equipment for efficient and economical handling of goods. They are served by trunk line railroads and a net work of highways that expedite the movement of freight. Inland and coastal routes for waterborne commerce are being steadily improved.

More than \$24,000,000 were expended during the past fiscal year in improvement of rivers and harbors on the Eastern seaboard. About 1,435 miles of inland route from New Jersey to Miami have been completed.

Allotments and estimated expenditures of more than \$100,000,000 for river and harbor projects in the Southern states have been made in the past two years. This is exclusive of projects surveyed and investigated, such as the Red River development in Texas to cost \$50,000,000, and other work. Additional work to be undertaken is dependent upon the amount of funds provided for work of this character under the Corps of Engineers, United States Army. The War Department appropriation bill, approved May 15, 1936, provided for the appropriation of \$159,427,899 to be applied to work under the supervision of the Corps of Engineers. A greater part of this will be available for Southern waterway projects.

Recent progress in the development of Southern waterways and harbor facilities and related projects under the direction of the Engineer Corps of the U. S. Army, is outlined in the following summary by Lucius D. Clay, Captain, Corps of Engineers.

Inland Waterway from the Delaware River to Chesapeake Bay, Del. and Md.

Under an allotment of \$4,857,000 received from the Emergency Relief appropriation act of 1935, work is being prosecuted on the deepening of this waterway to 27 feet for widths ranging from 250 to 400 feet. Additional funds in the amount of \$4,700,000 have been provided from the War Department appropriation act approved May 15, 1936. The total estimated cost of this project is about \$14,000,000.

Contractors:
Wisconsin Bridge and Iron Co., Milwaukee, Wis.
Edward H. Ellis, Inc., Westville, N. J.
Burket Construction Co., Vineland, N. J.
Richards-Kelly Co., Philadelphia, Pa.
Continental Dredging Co., Baltimore, Md.
Arundel Corporation, Baltimore, Md.
Atlantic, Gulf and Pacific Co., New York, N. Y.

Honga River and Tar Bay (Barren Island Gaps), Md.

With an allotment of \$40,000 received from the Emergency Relief appropriation act of 1935, the construction of a channel 60 feet wide and 7 feet deep from the 7-foot contour in Chesapeake Bay through Tar Bay and Fishing Creek to the 7-foot contour in Honga River has been completed.

Contractor:
S. B. Brooks, Inc., Baltimore, Md.

Knapp Narrows, Md.

With funds allotted by the Public Works Administration, a channel 9 feet deep and 75 feet wide was completed during 1935 at a cost of about \$46,000.

Contractor:
S. B. Brooks, Inc., Baltimore, Md.

Upper Thoroughfare, Deals Island, Md.

With funds allotted by the Public Works Administration, a channel 9 feet deep and 75 feet wide was completed dur-

ing 1935 at a total cost of \$37,672.

Contractor:
Norfolk Dredging Co., Norfolk, Va.

Ocean City Harbor and Sinepuxent Bay, Md.

Work on this project providing for the construction of an inlet between the Atlantic Ocean and Sinepuxent Bay, 10 feet deep, 200 feet wide, protected by jetties, and innerchannels of slightly lesser dimensions, has been completed with funds allotted from the Public Works Administration and from the Emergency Relief appropriation act of 1935. The work is a cooperative project between the Federal Government and local interests; Federal funds in the amount of \$340,000 having been provided by the Public Works Administration and from the Emergency Relief appropriation act of 1935, and \$500,000 having been contributed by local interests.

Contractors:
North Atlantic Dredging Co., Boston, Mass.
Jesse A. Howland & Sons, Inc., Sea Bright, N. J.
Delaware Dredging Co., Philadelphia, Pa.

Parish Creek, Md.

This stream, a small branch of the West River, has been improved to provide a channel 8 feet deep and 50 feet wide, under an allotment of \$19,300 received from the Emergency Relief appropriation act of 1935.

Norfolk Harbor, Va.

With an allotment of \$100,000 received from the Emergency Relief appropriation act of 1935, the 25-foot channel in the Southern Branch of the Elizabeth River was extended to a point about 1/2 mile above the Norfolk and Western Railway Bridge.

Contractor:
Lukens Dredging & Contracting Co., Balti-

Tangier Channel, Va.

A channel 60 feet wide and 7 feet deep together with a turning basin was completed during 1934 at a cost of \$42,000; these funds being allotted by the Public Works Administration.

Contractor:
S. B. Brooks, Inc., Baltimore, Md.

Inland Waterway from Cape Fear River, N. C., to Winyah Bay, S. C.

The completion of this 94 mile section of the waterway during March, 1936, makes available a protected inland waterway for small vessels from Philadelphia to Miami.

Contractors:
The Arundel Corporation, Baltimore, Md.
Standard Dredging Co., New York, N. Y.
Continental Dredging Co., Wilmington, Del.
J. S. Bowers, Whiteville, N. C.
Tidewater Construction Co., Norfolk, Va.

Morehead City Harbor, N. C.

Following the completion of a 30-foot channel to Beaufort Inlet at cost of \$1,500,000, the Morehead City Port Termi-

nal, a 1,600-foot pier and cargo building, 480x120 feet, was finished.

Contractors:
Gahagan Construction Co., Brooklyn, N. Y.,
channel project.
T. A. Loving & Co., Goldsboro, N. C., pier
and building.

Cape Fear River above Wilmington, N. C.

Under an allotment of \$1,120,000 of Public Works funds, the construction of a third lock and dam, together with modernization of the two existing locks and dams, has been completed during 1936.

Contractors:
T. A. Loving & Co., Goldsboro, N. C.
Lukens Dredging & Contracting Corporation, Baltimore, Md.
Wm. Eisenberg & Sons, Inc., Camden, N. J.

Waterway from Winyah Bay to Charleston S. C.

With an allotment of \$1,207,000 received from the Public Works Administration, the construction of a channel 10 feet deep and 90 feet wide was completed during 1935.

Contractors:
Lukens Dredging & Contracting Corp., Baltimore, Md.
Hill Dredging Corporation, Ventnor, N. J.
Atlantic, Gulf & Pacific Co., New York, N. Y.
Atkinson Dredging Co., Norfolk, Va.

Winyah Bay, S. C.

With \$325,000 provided from the War Department appropriation act approved May 15, 1936, a channel 20 feet deep and 500 feet wide will be dredged from a point opposite Mosquito Creek to a point opposite Frazier's Point.

Contractor:
Standard Dredging Co., New York City.

Shipyard River, Charleston Harbor, S. C.

An allotment of \$35,000 received from the Emergency Relief appropriation act of 1935 was applied during the current fiscal year to the provision of increased navigation facilities in this important tributary of Charleston Harbor.

Contractor:
Hill Dredging Co., Ventnor, N. J.

Waterway, Charleston to Beaufort, S. C.

An allotment of \$79,000 from the Emergency Relief appropriation act of 1935 has been applied to the dredging of a new cutoff channel in this section of the Intracoastal Waterway.

Contractor:
Merritt Dredging Co., Charleston.

Savannah Harbor, Ga.

The sum of \$945,000 allotted from the War Department appropriation act of May 15, 1936, is being applied to dredging channels, and the turning basin.

Contractor:
The Arundel Corp., Baltimore, Md.

Savannah River below Augusta, Ga.

An allotment of \$1,638,000 received from the Public Works Administration is being applied to the construction of a lock and dam at New Savannah Bluff and to open channel work to provide a stable 6-foot channel.

Contractor:
The Arundel Corp., Baltimore.

St. Johns River, Jacksonville to the Ocean

An allotment of \$674,000 made from the War Department appropriation act of May 15, 1936, will be applied to dredging Drummond Creek, Trout Creek, Six Mile Creek Cuts, and the construction of Terminal Channel.

Contractor:
Atlantic, Gulf and Pacific Co., New York City.

Intracoastal Waterway from Jacksonville to Miami, Fla.

This section of the waterway, 100 feet wide and 8 feet deep has a length of 372 miles, and was completed during the calendar year 1935.

Contractors:
The Arundel Corporation, Baltimore, Md.
Wilbanks & Pierce, Inc., Slidell, La.
Shore-Line Builders, Inc., Jacksonville, Fla.
Clark Dredging Co., Miami, Fla.
Standard Dredging Co., New York, N. Y.

Ft. Pierce Harbor, Fla.

With an allotment of \$210,000 made from the War Department appropriation act of May 15, 1936, the entrance channel will be widened and deepened; the channel across the Indian River and the turning basin dredged.

Contractor:
Clark Dredging Co., Miami, Fla.

Miami Harbor, Fla.

Deepening of the harbor and channels to 30 feet has been carried forward at a

Alabama State Docks, Mobile, Ala.

Industrial canal in background—latest improvement includes a cold storage plant and fruit terminal which is now under construction.

rapid rate, funds in the amount of \$2,202,000 having been provided by the Public Works Administration.

Contractor:
The Arundel Corp., Baltimore, Md.

Caloosahatchee River and Lake Okechobee Drainage Areas, Fla.

Work on this combined navigation and flood control project has been vigorously prosecuted during the past few years, funds in the amount of \$10,371,000 having been provided from emergency appropriations; \$1,382,000 additional has been provided from the regular War Department appropriation act.

Contractors:
R. C. Huffman Construction Co., Buffalo, N. Y.
McWilliams Dredging Co., New Orleans, La.
Paul Smith Construction Co., Haines City, Fla.
E. H. Latham Co., Columbus, Ohio.
C. Y. Thomason, Greenwood, S. C.
Spadaro Contracting Co., New York, N. Y.
Atlantic Dredging & Construction Co., Leland, Fla.
The Arundel Corporation, Baltimore, Md.
Standard Dredging Co., New York, N. Y.

Lake Worth Inlet, Fla.

With an allotment of \$450,000 made from the War Department appropriation act of May 15, 1936, the channel across Lake Worth will be widened and the turning basin enlarged; some jetty and revetment work will be done.

Contractors:
The Arundel Corp., Baltimore, Md.
E. H. Latham Co., Miami, Fla.

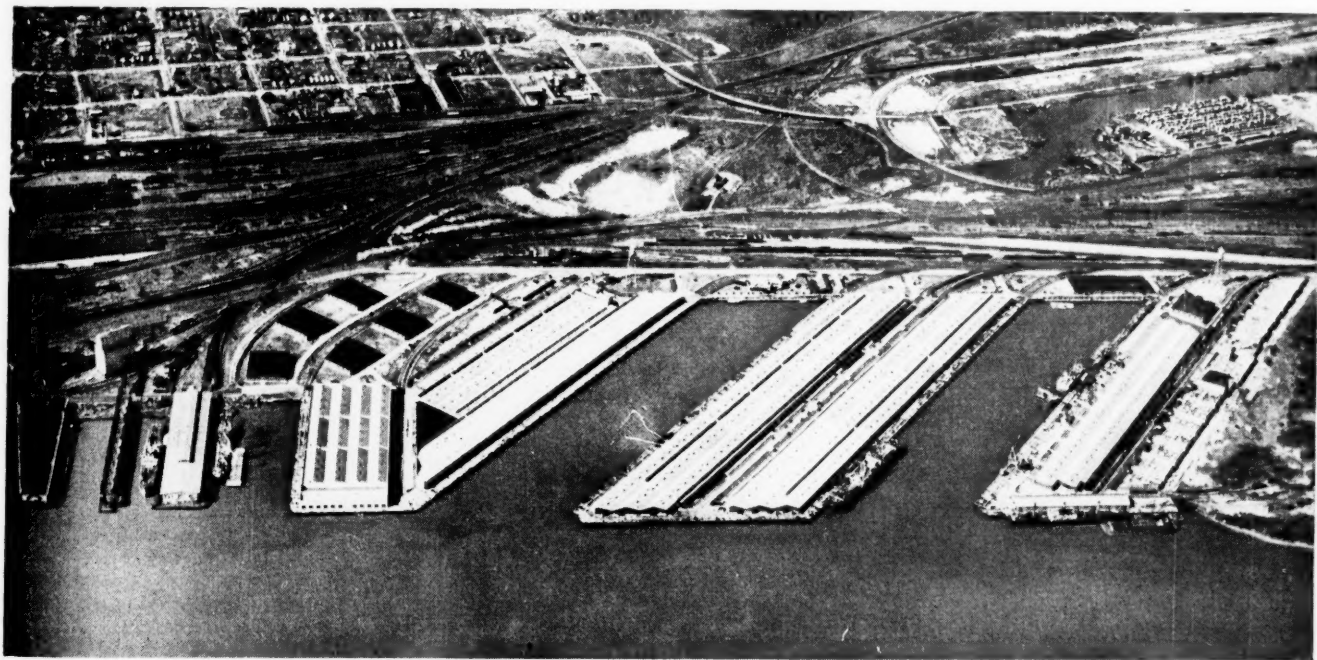
Tampa Harbor, Fla.

Deepening of the entrance channel to 32 feet and of the inner channels to 30 feet has been greatly advanced during the past few years with funds allotted from emergency appropriations in the amount of \$1,329,300 from the Public Works Administration, and \$1,463,000 from the Emergency Relief appropriation act of 1935, and the additional sum of \$410,000 also has been provided from the regular War Department appropriation act. This allotment will complete the project for improvement of Tampa Harbor.

Contractors:
Atlantic, Gulf & Pacific Co., New York, N. Y.
Spadaro Contracting Co., Inc., New York, N. Y.

The Atlantic-Gulf Ship Canal, Fla.

Work on this project providing for a sea level ship canal across Florida by



way of the St. Johns River to Palatka, thence via the Oklawaha and Withlacoochee Rivers to the Gulf of Mexico, near Port Inglis, was inaugurated during the summer and fall of 1935 under allotments totaling \$5,400,000 received from the Emergency Relief appropriation act of 1935. After expenditure of this amount work has stopped as no further allotments have been made.

Contractors:

George S. Funk & Stevenson Co., Clarksdale, Miss.
Lewis-Chalmers Construction Co., New Orleans, La.
Harvey Ray & Noonan, Pensacola, Fla.
Badgett Construction Co., Memphis, Tenn.
Benjamin Foster Co., Philadelphia, Pa.
Hooper Construction Co., Bunnell, Fla.
Blythe Bros. Co., Inc., Charlotte, N. C.
Boyle Road & Bridge Co., Sumter, S. C.
Cornell, Goldsmith Fuller, Brenwell, S. C.
George D. Auchter Co., Jacksonville, Fla.
M. J. Carroll, Inc., Ocala, Fla.

Waterway from Choctawhatchee Bay to West Bay, Fla.

An allotment of \$1,000,000 made from the War Department appropriation act approved May 15, 1936, will be applied to dredging in connection with construction of this canal to project dimensions of 9 feet depth and 100 feet bottom width.

Contractors:

Sternberg Dredging Co., St. Louis, Mo.
Shell Producers Co., Tampa, Fla.

Appalachicola River to St. Andrews Bay, Fla.

Extension of the Gulf Intracoastal Waterway between the points named is being carried out under an allotment of \$340,000 from the Emergency Relief appropriation act of 1935 and an additional allotment of \$60,000 from the regular War Department appropriation act.

Contractor:

Wilbanks & Pierce, Inc., Slidell, La.

St. Andrews Bay, Fla.

The dredging of a new entrance channel 27 and 29 feet deep was completed during 1934 under an allotment of \$582,000 received from the Public Works Administration.

Contractors:

Jahncke Service, Inc., New Orleans, La.
Shell Producers Co., Tampa, Fla.

Pensacola Harbor, Fla.

The dredging of a channel 32 feet deep was completed during 1934 under an allotment of \$119,678 received from the Public Works Administration.

Chickasaw, Ala.

The existing project providing for a channel 18 feet deep, 150 feet wide, from the mouth to the slips at Chickasaw,

about 2½ miles, was completed during the current fiscal year with funds allotted from the Emergency Relief appropriation act of 1935.

Black Warrior, Warrior, and Tombigbee Rivers, Ala.

Raising the crest gates of Dam No. 17 is being prosecuted under an allotment of \$523,000 received from the Emergency Relief appropriation act of 1935. The additional sum of \$275,000 has been allotted from the regular War Department appropriation act to be applied to clearing lands above the dam.

Contractor:

W. Horace Williams, New Orleans, La.

The Louisiana - Texas Intracoastal Waterway from the Mississippi River at or near New Orleans, La., to Corpus Christi, Tex.

This 9-foot waterway was completed as far west as Galveston Bay during the past year, and the Department is prepared to prosecute work on the remainder of the project to Corpus Christi as fast as the necessary rights-of-way are provided by local interests and funds are made available.

Contractors:

Perrillat Riekey Construction Co., Inc., New Orleans, La.
Nashville Bridge Co., Nashville, Tenn.
John J. Palmisano, Inc., New Orleans, La.
Bretch Taulbee, Austin, Tex.
Tellepsen Construction Co., Houston, Tex.
C. W. Hunter Co., Memphis, Tenn.

Petit Anse, Tigre, and Carlin's Bayous, La.

Provision of channels ranging from 5 to 9 feet in depth and 40 to 60 feet in width has been accomplished under an allotment of \$50,194 received from the Public Works Administration.

Contractor:

Jacobson, Sweeney & Jacobson, Inc., Galveston, Tex.

Mermentau River, La.

Provision of a channel 9 feet deep and 100 feet wide to its connection with the Intracoastal Waterway was accomplished during the current fiscal year under an allotment of \$30,000 from the Public Works Administration.

Contractor:

Jahncke Service, Inc., New Orleans, La.

Sabine-Neches Waterway, Tex.

Deepening and widening of the channels in this important project serving Beaumont, Orange, and Port Arthur, has been actively prosecuted with funds received from the Public Works Administration in the amount of \$1,383,000.

Contractors:

Clark Dredging Co., Miami, Fla.
Standard Dredging Co., New York N. Y.
Lester F. Alexander Co., Inc., New Orleans, La.

Texas City Channel, Tex.

Dike construction to provide for better maintenance of this important harbor was completed in 1934 under an allotment of \$136,295 from the Public Works Administration.

Contractor:

Standard Dredging Co., New York.

Houston Ship Channel, Tex.

The provision of enlarged navigation facilities on this important project was completed during the fall of 1935 under allotments totaling \$2,593,205 received from the Public Works Administration.

Contractors:

Atlantic, Gulf & Pacific Co., New York, N. Y.
Sternberg Dredging Co., St. Louis, Mo.

Houston Ship Channel, Tex.

Improvements consisting of deepening channel to 34 feet at approximate cost of \$1,020,000 authorized.

Galveston Harbor, Tex.

An allotment of \$234,000 made from the War Department appropriation act of May 15, 1936, will be applied to construction of 10 groins in the Gulf of Mexico along the Galveston seawall.

Contractor:

J. W. Zempter Contracting Co., Galveston, Tex.

Freeport Harbor, Tex.

The provision of increased navigation facilities has recently been completed under an allotment of \$126,500 received from the Public Works Administration.

Contractors:

Texas Gulf Construction Co., Galveston, Tex.
H. J. Hetekes, Galveston, Tex.
Sternberg Dredging Co., St. Louis, Mo.

Port Aransas, Tex.

The provision of better navigation facilities at this important port was recently completed under an allotment of \$325,880 received from the Public Works Administration.

Contractors:

J. De Puy, San Antonio, Tex.
Scrivner & Richardson, Aransas Pass, Tex.

Brazos Island Harbor, Tex.

The provision of a jettied entrance channel 25 feet deep through Brazos-Santiago Pass and thence of the same depth to the towns of Point Isabel and Brownsville, has recently been completed; funds in the amount of \$2,860,000 having been provided by the Public Works Administration and \$1,454,650 provided by local interests, this latter amount being the cost of the channels to Point Isabel and Brownsville which, under the authorization providing for the project, were to be provided by local interests, the Federal Government providing only for the entrance channel through Brazos-Santiago Pass.

Contractors:

W. E. Callahan Construction Co., St. Louis, Mo.
Atlantic, Gulf & Pacific Co., New York, N. Y.

Wolf River (Memphis Harbor), Tenn.

The provision of a channel 9 feet in depth to the Second Street Bridge was completed during the current fiscal year under an allotment of \$588,000 received from the Public Works Administration.

Contractor:

Minneapolis Dredging Co., Minneapolis, Minn.

Tygart River Reservoir, W. Va.

This project provides for the construction of a concrete gravity type dam 1,850 feet long, rising 215 feet above the elevation of the river bed, providing for the storage of 100,000 acre feet to make up for the deficiency of water in the Monongahela River during low rainfall periods and for the additional storage of 227,500

(Continued on page 72)

New Deepwater Port Facilities at Brownsville, Tex.



MINE MECHANIZATION

An Important Cog in the Wheels of Progress

By
Carl Scholz
Consulting Mining Engineer

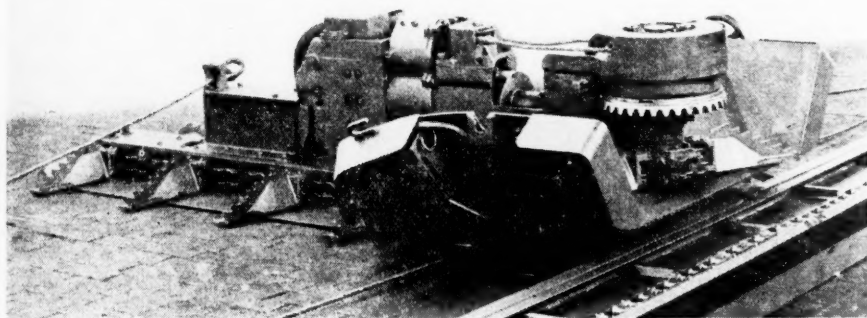
MECHANIZATION of coal mines is the term usually applied (a) where loading machines are used which shovel the coal into mine cars or onto a conveyor or (b) it may mean the installation of conveyors for loading by hand. The latter method is usually applied when the coal is too low to permit the placing of cars at the face without removal of either bottom or top slate. It is obvious that the loading machine in high coal can do this work with less effort than can be done by hand because where coal has to be loaded over a high car the energy expressed in foot-pounds becomes a material factor. In low seams the coal can be shoveled with less effort on a conveyor because it only extends six inches above the floor of the vein and can be brought very close to the face, thus obviating long distance handling.

Type of Equipment Governed by Individual Mine Requirements

The type of equipment adopted depends entirely upon the conditions such as thickness of the vein, impurities in the seam, roof and floor conditions, grades, and other factors which may be very important. It is also necessary to consider interest on the investment, depreciation, charge for obsolescence, and the maintenance and continuity of operation.

Some fifty mines in Southern West Virginia are now using mechanical loaders

Low vein loading machine which will operate in 30-inch seam, moving coal into conveyor.



Undercutting Machines and Mechanical Loaders Among Types of Modern Equipment Employed to Reduce Cost and Increase Safety Factor in Coal Mines of West Virginia.

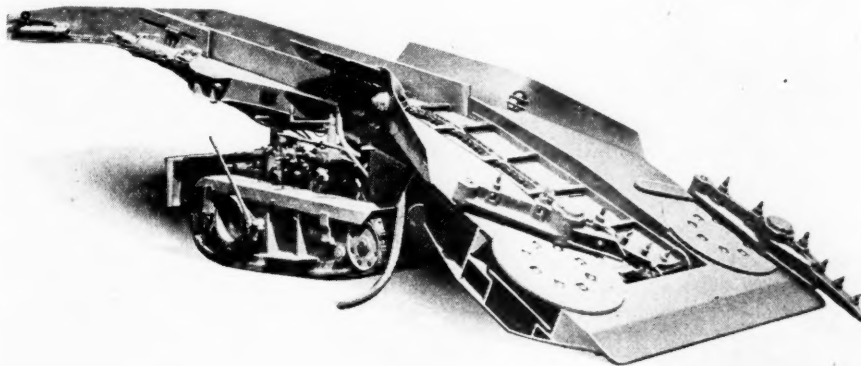
in production of part or all of the tonnage. Others are merely awaiting more settled trade conditions to make installations, and still others have been deterred by their inability to make those purchases, but it can safely be stated that if they do not do so, they will have to cease operating.

Just as the undercutting of coal in West Virginia grew from 5% in 1897 to 92% in 1935, it is reasonable to anticipate that mechanical loading will grow as the machines are perfected. Between January 1, 1936 and June 30 mechanical loading in West Virginia increased 70%, reaching 607,000 tons in June.

In looking over the list of mines equipped with these labor saving devices, it is apparent that the smaller companies

have really made more installations than the larger concerns. This might be due in part to the fact that the older companies acquired acreages of thick coal whereas the newcomers, and especially the smaller concerns, had to take the thinner remaining areas, and it is in the thin coal where the saving due to mechanical loading is more pronounced. In this respect mechanization will greatly aid in the conservation of coal, because territories which had been regarded as of no economic value can now be put into operation on an economical basis. There is no doubt that the high wage rates established under the N.R.A. and further raised on October 1, 1935, under pressure brought by the leaders of the Mine Workers in which they had the strong support of the President of the United States when he urged the passage of the Guffey Bill, speeded the movement for mechanization. Perhaps, it did not occur to Congress that while they may compel the coal operators to pay a certain wage, it was powerless to compel the buyer to pay more money for coal than he would pay for other forms of fuel. Instead of increas-

This type loading machine operates in a seam 4 feet and over, loading from face into cars. The crawler wheels are so arranged as to travel on tracks or mine floor.



ing the earnings of the miners, the higher wage only reduced the possibilities for coal to compete with laborless fuel, and has actually reduced the earnings of the men and the number of men required for the production now required by the market. Thus, mechanization is a very necessary step to retention of markets.

Mechanization Started 40 Years Ago

Mechanization in coal mines really began about 40 years ago when undercutting machines were adopted. Time studies
(Continued on page 76)

Break Shackles of POLITICAL CONTROL

Suggested Basic Changes in Government Policy to Free Workers and Business From Wasteful, Inefficient Political Spoils System That Is Sapping the Economic Life of the Nation

By
Walter Parker
Economist

PARAPHRASING Mark Twain: Everybody complains about politics, but nobody does anything effective about it.

There is a cause for every effect.

Once upon a time statesmen, rather than politicians, shaped the policies of the country. Politicians now do that.

The cause of the unhappy change is to be found in the lengthy period of the country's rapid expansion and enormous wealth creation.

During that period most men were so busy making money that little time remained to them in which to think of governmental affairs. They just left government to those who desired to operate it, demanding only that the processes through which money was to be made at least be left undisturbed, if not aided by governmental action.

Under this system two conditions developed, both hostile to the basic purposes of the fathers. The politicians became stronger and stronger. More and more the several groups of money makers became deeper and deeper entrenched.

The depression played havoc with the groups, but greatly increased the hold on government by the politicians.

This applies to Democrats and Republicans alike. The effect is the same no matter which party holds power. The system had its roots and growth in a period of unequalled prosperity and wealth creation, and the workers are now paying the penalty for a hundred years of neglect.

The problem has now become one of economics—cost of government has become a factor, and a serious factor.

Possibly the remedy lies only in basic changes.

Were the President elected for a single term, with reelection prohibited, the chief executive would be largely freed of all considerations not wholly germane to the welfare of the country.

Were the political conception of taxation abandoned, and the economic conception of taxation substituted, taxation

would be applied to the fruits, and not to the processes of enterprise, with consequent increasing benefit to the economic well being of the country as a whole.

And were the paid employees of government regarded as employees, and not as political henchmen, and denied the right to participate in politics, or even to vote, the electorate would be in far better position to favorably influence public affairs than it now is.

Finally, were all those on the dole, or on pension, treated as wards of government, to be taken care of, but denied the right to vote, the self supporting electorate would be far better able to steer government into paths of virtue and sound economics than it can now do.

No business man, the integrity of whose investment depends upon good management, could hope to succeed, were his costs and actions determined wholly by his employed staff.

Yet, to an extreme degree, that is just what happens in government, with this exception: Nowadays, in government, the people who pay the bills have practically no say as to the number of employees, the number of pensions, or, in the net result, how much of their money is used or what it is used for. They just pay the bills, no matter which party be in power.

Hence the necessity for basic change in order to bring about a favorable, in place of an unfavorable, effect on the nation's affairs in general.

In this connection it should be remembered that—

The earning power of a surplus producing, world creditor country, per unit of endeavor, is less than the earning power of a surplus producing, rapidly expanding, pioneer country, which is richly endowed, using foreign money for

development, and paying the debt by exporting surplus commodities.

Such a country needs sound economy more than does a pioneer country.

For these reasons the loss of world markets, accompanied by a radical increase in governmental costs during the last five years, has had repercussions of a very far-reaching nature.

Sooner or later the system of operating government will have to be changed to one of careful economy, far-visioned help to profit earning enterprise, and to the promotion of new opportunity.

For these reasons, the underlying political cause of waste, extravagance and low effectiveness will have to be removed.

This can be accomplished only by removing the country as far as possible from the political spoils system.

Manufacturers' Products Exhibit

THE first manufacturers' products exhibit sponsored by the Purchasing Agents Association of Baltimore, which was held at the Lord Baltimore Hotel, October 20-21, was largely attended. With the original layout of 48 booths it was found necessary to increase space to 56 booths with 52 exhibitors. Local and national concerns were represented with a well diversified line of products.

Indicating the scope of some of the displays, the Carey Machinery & Supply Company, Baltimore, exhibited among other products, Reeves pulleys, Lunkensheimer valves, Norton abrasives and Dodge couplings; the L. A. Benson Co., machinery and supply house of Baltimore, showed Fafnir bearings, South Bend Lathe, Black & Decker electric tools, and the Kemp Machinery Co., Baltimore, featured Thor electric tools. The list of exhibitors included:

Air Reduction Sales Company, Anderson & Ireland Company, Baltimore Belting Company, Baltimore Cooperage Tank & Tower Company, Baltimore Electric Supply Company, Inc., L. A. Benson Company, Inc., George M. Budeke Company, Business Equipment Company, Cambridge Wire Cloth Company, Carey Machinery & Supply Company, Central Iron & Steel Company, Champion Lamp Works, Chase Brass & Copper Company, Wm. H. Cole & Sons Company, Crown Cork & Seal Company, A. B. Dick Company, Dolmore Chair Co., Eastern Box Company, Enterprise Galvanizing Company, F. A. Davis Company, General Electric Supply Company, General Supply & Equipment Company, Inc., Globe Brewery, Hajoca Corporation, The Industrial Corporation, Jenkins Brothers, Inc., Kelox Manufacturing Company, Kemp Machinery Company, J. R. Livezey Company, Lucas Brothers, Inc., John D. Lucas Printing Company, Mangels-Herold Company, Inc., Marvelite Paint Company, Maryland Bolt & Nut Company, The Alexander Milburn Company, Modern Stationery & Printing Company, Monroe Calculating Machine Company, Inc., Oakite Products Company, Inc., E. G. Schenutt Rubber Company, Southern Supply Company, Inc., The Standard Lime & Stone Company, Standard Oil Company (of New Jersey), Underwood Elliott Fisher Company, James Walker Company, Wallace-Barnes Company, F. Weber Company, H. C. Weiskittel Co., West Disinfecting Company, Westinghouse Electric Supply Company, The White Company, Williamsport Wire Rope Company, York Safe & Lock Company.

A \$4,000,000,000 Payroll

GOVERNMENT employees constitute the largest group of workers in this country. Three million of them are on the payrolls of Federal, State and local governments—paid by taxes from the wages and earnings of the people. Their combined salaries are estimated to total \$4,000,000,000.

Rayon Activity at Peak

Plant Expansions in South and New Rayon "Cotton-Wool" Yarn Feature New Developments of this Growing Industry Which Has Over 70 Per Cent of its Manufacturing Capacity in the Southern States

ACTIVITY in the rayon industry of the United States has been of record-breaking proportions with deliveries of non-acetate yarn to American mills equal to capacity production of domestic mills, plus a small amount drawn from producers' stocks. Stocks held by the industry at the end of September equaled only three tenths of one per cent of a month's supply.

As more than 70 per cent of the rayon manufacturing capacity of the United States is in the South, this section is deeply interested in the advancement being made.

Additions to Southern rayon plants are being made at Rome, Ga., where the Tubize Chatillon Corporation is to start the erection of a \$2,500,000 unit of which Robert & Company, Atlanta, are the engineers and Batson-Cook Co., West Point, Ga., are the contractors. The Viscose Company, which operates the largest rayon plant in the world at Roanoke, Va., has begun the construction of a new plant at its Nitro, W. Va., development for the manufacture of cut rayon staple.

This new rayon product is a material that is spun by cotton, silk and wool spinning mills and makes spun rayon yarn and subsequent fabrics which differ in appearance and texture from the filament rayon yarn made in all of the Viscose Company's plants. The material has woolly characteristics, but it is more versatile since it can be made like cotton, linen, wool or spun silk by using various types of the cut staple and by spinning it on the different types of machines and in different ways on those machines.

The Viscose Company does not sell the yarn, but the raw material, which would be equivalent to cotton or wool, to the spinners who put it into process in the same manner as they would the natural fibers. Spun rayon is going mostly into the dress trade and in suits, both as all spun rayon materials and in blends of spun rayon with cotton and with wool. The new rayon staple is made by the same viscose as the yarn but is spun on entirely different machinery and goes through different handling after the spinning.

Demand for spun rayon has grown tremendously during the current year and has every prospect of continuing to increase. It is only beginning in the suiting field, which in Europe is already accounting for a huge production of spun rayon. In Italy for instance, the largest pro-

ducer of rayon turned out last year more spun rayon than they did filament rayon.

All our rayon is made from wood or cotton cellulose. The cut rayon staple using casein in Italy has not reached great proportion so far and has not been adopted in this country up to the present time.

Road Construction Uses 8,500 Bales of Cotton

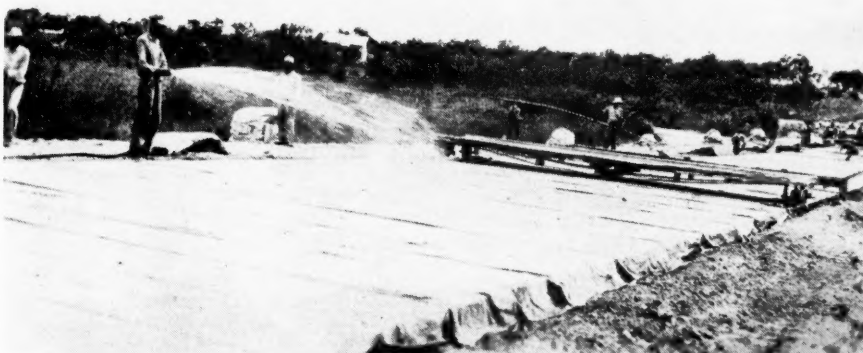
MORE than 8,500 bales of cotton have been used in producing cotton fabric as a binder in asphalt and tar surfaced roads, and mats for curing concrete. In this experimental work, sections of roads have been laid with different types of fabric membrane binder and without fabric to determine the comparative cost and practicability of this method of construction for secondary roads.

It has been found that the fabric, laid over tar-treated top-soil or old bituminous-surfaced bases and covered with asphalt or tar emulsions and crushed stone, definitely prolonged the life of the road, with less raveling at the edges, fewer surface cracks, and less patching. Fabric reinforcements also proved successful in maintaining satisfactory bituminous surfaces on flexible timber bridge floorings, where deflection of floor planks tend to develop cracks in the surface.

Cotton mat method of curing concrete being conducted in a score of states is proving of interest to road builders. Successful use of the mats in Texas since 1933 is reported by the State Highway

Cotton Mats Employed to Cure Concrete

The mats are placed on the pavement as the finishing operations are completed.
Photo-Cotton Textile Institute



Department to the Cotton-Textile Institute. Marked economies in time and money and a sturdier pavement were secured.

Using cotton mats, the Texas Department found that freshly laid concrete can be cured in not to exceed 72 hours with a saving of from 15 to 25 per cent, not to speak of the definite economy represented by the re-use of the mats for from 75 to 100 replacements. More important, probably, the cotton cured pavements, in two cases cited by the Department, showed compression strengths of 5030 and 4438 per square inch.

While specifications for the mats vary among the several states according to local conditions or requirements, most of them are approximately 22 feet by 6 feet, made of a coarse cotton fabric filled with 8 ounces or more of cotton per square inch. Obviously, the general acceptance of the cotton mat curing method by road builders would open a vast potential outlet for cotton in addition to the cotton fabric binder in bituminous surfacing work.

More than 80,000 mats, similar to those used by the Texas Department, have been distributed during the summer and fall by the Federal Bureau of Public Roads to 22 states. The distribution was a phase of the department of Agriculture's \$1,300,000 project to demonstrate the practicability of cotton as a road-building material and which included the allocation to state highway departments of nearly 6,000,000 square yards of cotton fabric reinforcing membrane for the construction of demonstration cotton reinforced bituminous surfaced highways.

Snares "Pay Dirt" Electrically

Ten electrostatic dust precipitators recently developed by Westinghouse research and installed by Pangborn Corporation, Hagerstown, Md., on 5 automatic glazing machines in the plant of the Homer Laughlin China Company at Newell, W. Va., are expected soon to pay for themselves, since they recapture 4 tons of china glaze a week valued at 6 cents to \$2 per pound, depending upon type. By the use of the new electrostatic units, floor space and cleaning time are but one-tenth of that formerly required. In operation, the glaze collected on the plates automatically falls back into the booth and is immediately fed into the recirculating glaze. The only cleaning necessary is to remove the small quantity of glaze at the end of the day which has collected on the plates.

CONSTRUCTION AWARDS AT PEAK IN THE SOUTH

WITH the kraft paper industry continuing to move southward, with more than \$31,000,000 to be expended in enlarging Alabama's iron and steel facilities reported during October, and other manufacturing enterprises under way and proposed, the South is making a new development record.

For October alone, engineering and construction contracted aggregated \$114,047,000. Only one month has been previously recorded by the MANUFACTURERS RECORD when the total awards in the South were higher. For the 10 months of this year in excess of \$770,769,000 of new construction was undertaken, the largest for any 10-months period, except in 1926 and 1930, and surpassing any yearly total since 1930.

Industrial plant awards of \$58,018,000 for October establishes a record and the 10 months total of new industrial building of \$235,720,000 is \$100,000,000 more than was reported for the entire 12 months of 1935 and about three times that of each of the years 1934 and 1933.

Industrial Projects

A number of important industrial projects were proposed and awarded during October. The United States Steel Corp., announced a \$29,000,000 program for its subsidiary, the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., Gulf States Steel Co., Gadsden, Ala., proposes a \$2,000,000 expenditure. The Southern Kraft Corp., subsidiary of the International Paper & Power Co., announced breaking of ground for an \$8,000,000 kraft mill at Georgetown, S. C. A \$7,000,000 plant is to be erected at Brunswick, Ga., by the Brunswick Paper Co., a Mead Corporation subsidiary. The St. Louis Independent Packing Co., St. Louis, Mo., received bids for a \$500,000 packing plant expansion program.

Republic Steel Corp. appropriated \$100,000 for improvements at its Sayreton,

Ala., mine. Contract was awarded by Owens-Illinois Can Co., Baltimore, for a \$300,000 building. Tubize-Chatillon Corp. awarded contract under its \$2,500,000 expansion program, at Rome, Ga. Brown Paper Mill, at Monroe, La., awarded contract for a storage basin to cost \$150,000. Contract was let by McAlpin Coal Co. for a \$100,000 project at McAlpin, W. Va. Site was acquired at Wilmington, N. C., for a \$1,000,000 oil terminal proposed by the Atlantic Refining Co.

The Memphis Power & Light Co., proposes a \$1,500,000 rural electrification program in Shelby County, Tennessee. Kentucky Power & Light Co., Louisville, plans a \$100,000 addition to its facilities. Louisville Gas & Electric Co., Louisville, plans expending \$1,800,000 for a 25,000 kilowatt generating unit.

SOUTHERN CONSTRUCTION ACTIVITY

	October, 1936		First 10 Months, 1936	
	Contracts awarded	Contracts to be awarded	Contracts awarded	Contracts to be awarded
General Building				
Apartments and Hotels ..	\$3,910,000	\$2,210,000	\$26,501,000	\$20,211,000
Association and Fraternal.	200,000	820,000	2,983,000
Bank and Office	115,000	2,205,000	3,913,000	5,813,000
Churches	425,000	640,000	3,218,000	11,960,000
Dwellings	6,978,000	7,366,000	53,166,000	35,466,000
Stores	3,425,000	3,720,000	19,157,000	22,591,000
	\$14,853,000	\$16,341,000	\$106,775,000	\$99,024,000
Public Buildings				
City, County, Government and State	\$8,127,000	\$19,870,000	\$104,494,000	\$193,699,000
Schools	6,596,000	13,885,000	46,948,000	86,393,000
	\$14,723,000	\$33,755,000	\$151,442,000	\$280,092,000
Roads, Streets and Paving.	\$19,524,000	\$38,765,000	\$201,926,000	\$314,045,000
Industrial and Engineering				
Drainage, Dredging and Irrigation	\$1,140,000	\$4,740,000	\$20,151,000	\$112,872,000
Filling Stations, Garages.	850,000	465,000	4,787,000	5,801,000
Industrial Plants	58,018,000	36,510,000	235,720,000	381,153,000
Levees, Revetments, Sea-walls, Dikes, etc.	708,000	5,900,000	13,634,000	30,024,000
Sewers, Drainage and Waterworks	4,231,000	14,063,000	36,334,000	91,184,000
	\$64,947,000	\$61,678,000	\$310,626,000	\$621,034,000
Totals	\$114,047,000	\$150,539,000	\$770,769,000	\$1,314,195,000

October Total \$114,047,000

Makes \$770,769,000 for
the 10 Months — Industrial
Building Is Active

The Duke Power Co. starts construction of \$3,000,000 addition to Riverbend steam-electric station on the Catawba River.

General Building

General building contracts during October were valued at \$14,853,000, a figure below that for September, but much higher than those for other months of the year except July.

October dwelling awards of \$6,978,000 were below September's figure, although the value of proposed residences in October is higher than that in the preceding month.

The important store award of the month was the \$700,000 Kress Building at Birmingham, Ala. Value of all such lettings totaled \$3,425,000 with prospective work somewhat above that amount.

Apartment and hotel awards of \$3,910,000 did not quite reach the figure for September even in face of several important contracts. Similarly, the proposed buildings in this class were valued at slightly below those of September.

Among the outstanding apartment projects were those of J. Charles Shapiro, Inc., for a \$300,000 building in Washington, D. C., a \$110,000 structure in the same city for Raidman, Inc. Henry K. Jawish also of Washington, awarded contract for a \$350,000 structure.

Public Construction

Road construction maintained its steady pace with the month's awards of \$19,524,000, above that for September. Proposed road work indicated a continuation of activity. The projected amount was \$38,765,000, also above September's figure. The aggregate awards for roads for the 10 months is \$201,926,000.

Awards for sewers and waterworks amounted to \$4,231,000. Proposed work of this nature was valued at \$14,063,000.

Government building showed signs of slackening its pace, with awards for the month of \$8,127,000, much under the September figure. School awards, however, jumped high above September to \$6,596,000. Proposed school work at \$13,885,000 more than equalled that last month.

These and other projects announced during October indicate the scope of activity in new construction and expansion work under way in the Southern States.

**"OUR 21st MARION HOLDS THE RECORD
IN THIS SECTION FOR MATERIAL HANDLED"**

SAYS

H. R. Randall

President

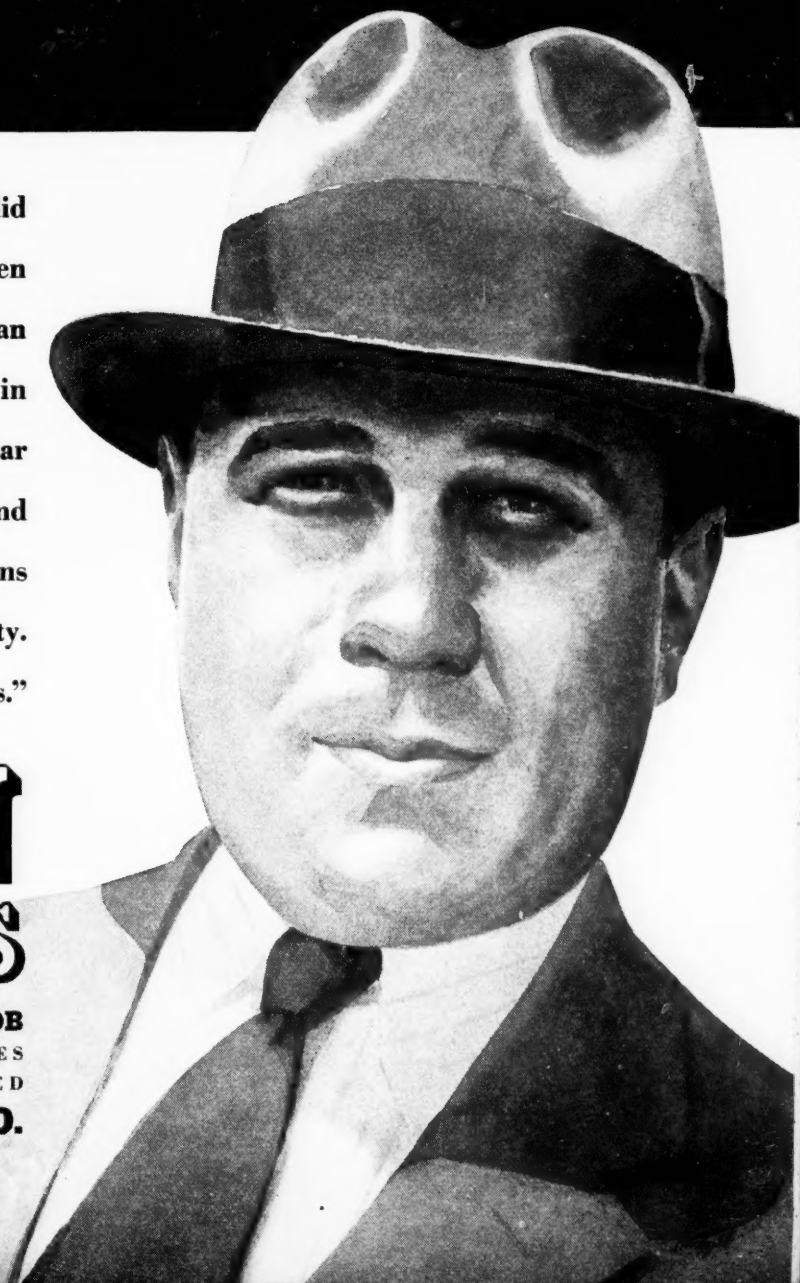
RHOADS CONTRACTING CO.

Ashland, Pennsylvania

"We are justified in feeling proud of the splendid performance of our Marion Type 38-A Dragline. When a machine, equipped with a 2-1/2 cu. yd. bucket can handle 3,240 tons of material on a bank job in twenty-four hours—and do it consistently for a year—it must have everything Marion claims for it—and more. But we are not surprised. Twenty Marions before this convinced us of Marion's dependability. Our twenty-first Marion recently installed confirms this."

MARION EXCAVATORS

A MACHINE FOR EVERY MATERIAL HANDLING JOB
WRITE FOR BULLETINS DESCRIBING THE MACHINES
IN WHICH YOU ARE PARTICULARLY INTERESTED
THE MARION STEAM SHOVEL CO.
MARION, OHIO, U. S. A.



Representative Projects In The South Last Month

Proposed Construction

Ala., Gadsden—Gulf States Steel Co. Expansion program	\$2,000,000
D. C., Washington—J. Charles Shapiro, Inc. Apartment building; Louis T. Rouleau, Archt.	300,000
Fla., Deland—City Electric light plant	398,000
Fla., Jacksonville—City Sanitary sewers and drainage	220,000
Fla., Miami—Paramount Enterprises, Inc. Theatre; Martin L. Hampton, Archt.; R. A. Belsham, Engr.	150,000
Fla., Miami—Detroit Hotel Co. Hotel; Albert Annis, Archt., Miami Beach	350,000
Ga., Brunswick—Brunswick Pulp & Paper Co. Pulp mill	7,000,000
Ga., Cordele—Cordele Development Co. Hosiery plant	500,000
Ky., Henderson—City Waterworks	165,000
Ky., Maysville—Kentucky Power & Light Co., Louisville Generating equipment	100,000
La., Baton Rouge—State Office building; Edward F. Neild, Archt., Shreveport	1,145,000
La., Natchitoches—Natchitoches Parish School Board High school, negro school	350,000
La., New Orleans—Sewerage and Water Board Water lines	450,000
La., Shreveport—State Exhibition hall; Edward F. Neild, Archt., Shreveport	500,000
Md., Baltimore—City Water tunnel; Leon Small, Water Engr.	5,000,000
Md., Cumberland—City Water improvements, Whitman, Requardt & Smith, Engrs., Baltimore	1,025,000
Md., Elkton—School Board School; Jeffers & Martin, Archts., Wilmington, Del.	180,000
Miss., Columbus—Mississippi State College Dormitory, Vinson B. Smith, Jr., Archt., Gulfport.	180,000
Miss., Jackson—Kennington-Saenger Theatres, Inc. Theatre; R. W. Naef, Jackson, and W. Scott Dunne, Dallas, Tex., Archts.	250,000
Miss., University—University of Mississippi Dormitory; R. W. Naef, Archt., Jackson	400,000
Miss., Vicksburg—City Natural gas pipe line	200,000
Mo., Normandy—Consolidated School District School program	336,000
Mo., North Kansas City—Clay County Water Association Water system; Henrici-Lawry Engineering Co., Engrs., Kansas City	410,000
Mo., St. Louis—St. Louis Independent Packing Co. Plant improvements	500,000
Mo., St. Louis—Jefferson Hotel Hotel improvements	600,000
Mo., St. Louis—City Sewers; W. W. Horner, Engr.	435,000
Mo., St. Louis—Ancient Free and Accepted Masons Building	200,000
Mo., St. Louis—City Armory; William C. E. Becker, Chief Engr.; Albert Osburg, Chief Archt.	1,347,000
Mo., St. Louis—City Psychopathic Hospital; William C. E. Becker, Chief Engr., Albert Osburg, Chief Archt.	1,500,000
N. C., Newbern—Lord Craven Hotel Corp. Hotel and seawall; Raymond Fuson, Archt.; Bevington- Williams, Inc., Indianapolis, Mech. Engrs.	600,000
N. C., Wilmington—Atlantic Refining Co., Philadelphia Oil terminal	1,000,000
Okla., Stillwater—City Waterworks; A. Peterson, Engr.	300,000
Tenn., Knoxville—S. & W. Cafeteria Co. Cafeteria; M. E. Boyer, Jr., Archt., Charlotte, N. C. Tenn., Memphis—Memphis Power & Light Co. Rural electrification	150,000
Tex., Bay City—City Generating station; Garrett Engineering Co., Houston, Engrs.	225,000
Tex., Corpus Christi—Southwestern Bell Telephone Co. Telephone expansion	760,000
Tex., Dallas—Industrial Improvement Co. Professional building; George L. Dahl and E. Bruce La- Roche, Archts.	1,500,000
Tex., Houston—Treasury Dept. Office building	690,000
Tex., Houston—American Can Co. Can plant	1,000,000
Tex., Houston—Champion Paper & Fibre Co. Paper plant addition	3,000,000
Tex., San Antonio—City Municipal improvements	450,000
Va., Charlottesville—University of Virginia Library building	950,000
Va., Charlottesville—Virginia Public Service Co. Rural distribution lines	300,000
Va., Pulaski—Wallner Silk Hosiery Mills Hosiery mill	150,000
W. Va., Elkins—Tygart Valley Homestead Association Homestead enlargement	1,000,000
W. Va., Montgomery—Coal Valley Hospital Hospital building; Warne-Tucker-Silling, Archts., Charleston	300,000

Contracts Awarded

Ala., Birmingham—Tennessee Coal, Iron & Railroad Co. Expansion program	\$29,000,000
Ala., Birmingham—J. J. Newberry Co. Store improvements; A. K. Adams Co., Atlanta, Ga., Contrs.	150,000
Ala., Birmingham—Federal Housing Administration Housing project; Algernon Blair, Montgomery, Contrs.	1,569,000
Ala., Birmingham—S. H. Kress & Co. Store; Day and Sachs, Contrs.	700,000
D. C., Washington—Department of Interior Electrical work; Ross Electric Construction Co., Philadel- phia	239,000
D. C., Washington—Henry K. Jawish Apartment building; Highway Engineering & Construc- tion Corp., Contrs.	350,000
D. C., Washington—Mayfair Development Corp. Apartment building; Price Construction Co., Baltimore, probable Contrs.	1,000,000
D. C., Washington—Housing Division Housing project; Coath & Goss, Inc., Chicago (low bidder)	1,273,000
Fla., Hollywood—U. S. Engineer Dredging; Arundel Corp., Baltimore (low bidder)	191,000
Fla., Lake City—Veterans Administration Administration and clinical building; Brice Building Co., Birmingham (low bidder)	177,000
Fla., Miami Beach—William K. Vanderbilt Residence; William S. Green Co., Contrs.	150,000
Ga., Atlanta—City Sewage disposal plant; Virginia Engineering Co., New- port News, Va. (low bidder) Engstrom & Wynn, Inc., Wheeling, W. Va., Contr.; Hardaway Contracting Co., Columbus, Ga.	541,000
Ky., Louisville—Greyhound Lines Bus terminal; Dahlem Construction Co., Contrs.	100,000
Ky., Louisville—City Sewerage pumping station; Charles E. Cannell Construc- tion Co., Contrs.	317,000
La., Baton Rouge—Louisiana State University Law building; Caldwell Brothers and Hart, New Orleans, Contrs.	679,000
La., Monroe—Brown Paper Mill Storage basin; Foreum-James Co., Dyersburg, Tenn., Contrs.	150,000
La., New Orleans—U. S. Engineer Dredging; McWilliams Dredging Co. (low bidder)	441,000
La., New Orleans—Xavier University Library; George J. Glover, Contr.	150,000
Md., Baltimore—City Municipal airport; Arundel Corp., Contrs.	1,326,000
Md., Baltimore—Owens-Illinois Can Co. Building; Lee Paschall, Richmond, Va., Contr.	300,000
Miss., Biloxi—Veterans Administration Domiciliary building; Virginia Engineering Co., Newport News, Contr.	319,000
Mo., Fulton—State Building Commission Hospital for criminal insane; MacDonald Construction Co., St. Louis, Contrs.	321,000
Mo., Kansas City—City City Hall, (interior) Swenson Co., Contrs.	1,270,000
Mo., Nevada—State Building Commission Infirmary and tuberculosis building; Rinehart Construc- tion Co., St. Louis, Contrs.	238,000
Mo., St. Joseph—State Building Commission Psychiatric building and kitchen; Lehr Construction Co., St. Joseph, Contrs.	227,000
Okla., Enid—Housing Division Housing project; D. C. Bass & Sons Construction Co., Contrs.	375,000
S. C., Charleston—City Marginal wharf; Fiske-Carter Construction Co., Green- ville, Contrs.	125,000
S. C., Columbia—W. B. Burney Estate Theatre; Mechanics Contracting Co., Contrs.	125,000
S. C., Georgetown—Southern Kraft Corp. Paper mill	8,000,000
Tenn., Nashville—Vanderbilt hospital Hospital addition; Foster & Creighton, Contrs.	850,000
Tex., Austin—Bureau of Reclamation Dam, Brown & Root, Inc., Austin and McKenzie Con- struction Co., San Antonio (low bidders)	5,781,000
Tex., Gilmer—Upshur County Court house and jail; James T. Taylor, Fort Worth, Contr.	183,000
Tex., Wichita Falls—State Board of Control Psychopathic hospital; J. L. Hair, Contr.	147,000
Va., Clarendon—Board of Education School; T. Calvin Owens, Bethesda, Md. (low bidder)	179,000
Va., Langley Field—U. S. Army Runways; Atlantic Bitulithic Co., Washington, D. C., Contrs.	287,000
Virginia—U. S. Engineer Dredging; W. H. Gahagan Construction Co., Brooklyn, N. Y., Contrs.	519,000
W. Va., McAlpin—McAlpin Coal Co. Coal shafts and slopes; Lilly Bros. and W. L. Piper, Princeton, Contrs.	100,000

MAIN OFFICE



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Here are three actual instances of how this flexible, modern service saves days and dollars for business:

- The zone manager for a large motor car manufacturer keeps in close contact with field supervisors in four cities by daily telephone conferences — checking sales reports, credit information, stocks of different models — and releasing cars from one dealer to another.
- A receiver liquidating a client's affairs talked simultaneously with creditors in four different cities as much as 1150 miles apart, and secured prompt agreement on a plan of settlement.
- An executive of a filtering and bottling equipment company saved the cancellation of a large order from a distillery by a telephone conference with two distillery officials and his own field man — all in separate cities.

In each instance, conference telephone service handled the matter more quickly and more easily than it could have been handled by any other method. Conference calls are easy to arrange. Just ask Long Distance for the Conference Operator. She'll do the rest.

WAREHOUSE



FACTORY



SALES BRANCH



IRON, STEEL AND METAL MARKET

STEEL activity held to a steady level during October. While the operating rate of steel mills reporting to the American Iron & Steel Institute dropped from 75 per cent of capacity at the beginning of the month to about 74 per cent at the close, it is substantially above the 51 per cent reported a year ago. The situation is more favorable than for some years. Many steel companies entered the final quarter of the year with the largest unfilled orders since 1929.

Buying by the automobile industry increased as production schedules of new models got under way. Continued pressure for deliveries of sheets and strips was felt and Railroad buying has been increasing. It is estimated that the railroads this year will buy approximately 2,900,000 tons of steel products, about double the purchases in 1935. Equipment buying has gained steadily. While the volume of machine tool purchases declined more than seasonably in September, the National Tool Builders Association's figures show the industry has recovered 65 per cent of the depression decline.

The more wholesome aspect of the steel situation has been the step-up in the heavy goods industry, with steel producers in this field operating at approximately the same rate of capacity as the light steel makers which have been leading in the upward trend in recent months.

New records since 1929 were set during September in the recovery in hardware sales by some manufacturers and wholesalers and October shipments about equalled the September rate. Many manufacturers have been behind in orders and distributors were reporting continued shortages.

Ingot Output Rises

Ingot production exceeds last year's output, being 40 per cent above that of the first three-quarters of last year and greater than for the entire year of 1935. Average daily pig iron production was larger in September than for any month in six years. October pig iron shipments were 10 per cent above September and the heaviest for any month this year. The recent advance of \$1 to \$21.50 a ton in the base price of pig iron in the East is the first in any territory in about a year. The advance applies to both basic pig iron, which is used in the manufacture of steel, and the foundry iron which goes into a variety of industrial uses.

Expansion in the South

A feature of the iron and steel industry during October was the announcement by the United States Steel Corporation that its subsidiary, the Tennessee Coal, Iron & Railroad Company will start immediately a \$29,000,000 tin plate mill development at Birmingham, Ala. Other iron and steel additions include the building of 146 coke ovens and other improvements at the Fairfield works of the TCI at an approximate cost of \$1,125,000. The Gulf States Steel Company

is expected to expend \$2,000,000 possibly for a tin plate mill at Gadsden, Ala. Since making a \$10,000,000 expenditure for improvements in 1931, the company now has a semi-continuous rolling mill for sheets and equipment for cold rolling sheets to be coated in the tinning department.

Outside of the South, it is reported that the Republic Steel Corporation will probably expend \$15,000,000 for the construction of a continuous rolling mill at the Corrigan-McKinney works at Cleveland, O.

More Pig Iron Produced

Pig iron production in the Birmingham District has been increasing with the highest number of blast furnaces in operation since January. More pig iron has been made in the Birmingham District so far this year than was produced in any year since 1931. Production for the first nine months exceeded 1,424,000 tons. With the announced resumption of the Ensley rail mill of the TCI and addition of two open hearth blast furnaces at least, the steel making rate of the Southern district is expected to go over 70 per cent of capacity.

New Business

Expansion of Alabama's steel producing facilities is attributed to general signs of an increase in steel requirements, first given impetus by the seasonal pick-up. The 29,123 ton order, representing an expenditure of \$1,000,000, placed with the TCI by the Southern Pacific Lines, was the largest single contract received by the company this year. The order will be rolled at the Ensley mill. TCI also received an order from the Nashville, Chattanooga & St. Louis Railroad for 6,075 tons of rail, and for 27,000 tons from the Louisville & Nashville Railroad.

The Southern Railroad System placed an order for 24,000 tons of new rails and accessories to be rolled and shipped during the Spring of 1937. A 131 pound rail is specified.

Virginia Bridge Company is furnishing 1,000 tons of structural steel for the Ethyl plant being constructed at Baton Rouge by DuPont interests.

Ingalls Iron Works received contract to furnish steel for the \$700,000 Kress store to be constructed at Birmingham. Ingalls is installing the third of the 22 steel gates at lock 17, Warrior River.

The Nashville Bridge Company is supplying steel for a bridge in Stone County, Mississippi.

In addition to other expenditures, the Nashville, Chattanooga & St. Louis Railroad will air-condition coaches at a cost of \$123,377. The St. Louis Southwestern Railway has ordered 50 flat cars from the American Car & Foundry Co. Pullman Standard Car Manufacturing Co., Birmingham, is to furnish new coaches for the Seaboard Air Line Railway, estimated to cost \$500,000. The Seaboard placed an order for 10,000 tons of rail recently with the TCI.

Work on rebuilding 1,000 box cars will

be started by the Baltimore & Ohio Railroad at its shops at Cumberland, Md., and Keyser, W. Va., and at other points.

The Youngstown Sheet & Tube Co. reports substantial orders for the balance of this year.

Fabricated Steel Bookings Higher

A slight improvement in the bookings and shipments of fabricated structural steel during September was shown in the final tabulation of the American Institute of Steel Construction, reversing the trend between August and September. The total of business done by this industry during the first nine months of 1936 was in excess of the business done during the whole 12 months of 1935. The estimated shipments for the first nine months amounted to 1,100,483 tons. Contracts closed in September amounted to 48.1 per cent of normal, the shipments in September amounted to 58.6 per cent of normal, compared with averages of 38.5 per cent and 41.7 per cent for the same months of last year.

Members attending the recent convention of the American Institute of Steel Construction at White Sulphur Springs, W. Va., were optimistic over the outlook for improvement in private construction. One fact emphasized was that although the government spent many millions in the past three years for public construction, it was smaller than in the preceding three-year period and public works probably never will provide a market for more than the lesser part of the sales of the steel construction industry. Clyde G. Conley, President of the American Institute of Steel Construction and other officers were reelected to serve another year and W. B. Truitt of the Carolina Steel & Iron Co., Greensboro, N. C., was elected a director.

Record Copper Sales

Domestic copper sales of 351,068,000 pounds set a record in October, and so far this year sales of 1,512,240,000 pounds show a 53 per cent increase over the corresponding 10 months of 1935, according to the Copper Institute. Copper prices have increased $\frac{1}{4}$ cent to 10 cents a pound, the third mark-up this year and reaching the highest level since early in 1931. Sales were reported at 10 $\frac{1}{2}$ cents a pound.

At the fifteenth annual meeting of members of the Copper and Brass Research Association in New York City, F. S. Chase, president, reported a marked increase in the consumption of products made from copper and its alloys during the first nine months of the current year, and that the outlook for the fourth quarter is "most encouraging." The following officers were elected: President, F. S. Chase, president of Chase Brass & Copper Co., Inc.; Vice President, John A. Coe, president of The American Brass Company; C. D. Dallas, president of Revere Copper and Brass Incorporated; Wylie Brown, president of Phelps Dodge Copper Products Corporation; Treasurer, C. D. Dallas; Secretary, Bertram B. Caddle.



Steel on Exhibition

As a part of its Centennial Program, the City of Fort Worth, Texas, has built this magnificent coliseum for exhibition purposes and general community use. This building is 232 feet by 405 feet with a clear unobstructed width inside of 217 feet.

Wyatt C. Hedrick and Elmer G. Withers Architectural Co. of Fort Worth were associated engineers and architects.

James T. Taylor, Fort Worth, General Contractor.

Steelwork by Virginia Bridge.

Steel Structures

NOVEMBER NINETEEN THIRTY-SIX

MOST of the notable structures of today have been made possible and practical through Steel Construction. For Steel is the most adaptable and dependable of all structural materials. Our organization and facilities have been active in Steel Building for over forty years.

VIRGINIA BRIDGE COMPANY

Roanoke Birmingham Memphis Atlanta

New York Charlotte Dallas El Paso

Plants at Roanoke, Birmingham, Memphis.

VIRGINIA BRIDGE

LUMBER NEWS

OF THE MONTH

Production and Shipments

Southern Pine Orders Above Corresponding Weeks of Last Year

THE lumber industry during October held to about 70 per cent of the 1929 weekly average of production and shipments. New orders for the week ended October 10 exceeded output for the first time in five weeks and new business continued to run ahead of production in the following weeks.

According to the National Lumber Manufacturers Association, Southern Pine, West Coast, Western Pine, Southern hardwoods, and Northern hardwoods had orders above production in the week ended October 17. All reporting softwood regions except Northern Pine had orders above the 1935 week.

Southern Pine Activity

Orders received during October by the Southern Pine mills reporting to the Southern Pine Association were from 15 to 29 per cent above the corresponding weeks of last year:

For the week ended October 24, 122 Southern pine mills showed:

Orders received amounted to 1,747 cars, or 36,674,000 feet, represented on the average an increase of 11 per cent above the previous week, and 29 per cent above the corresponding week of last year; shipments aggregated 1,569 cars, or 32,949,000 feet, a decrease, on the average, of 6 per cent below the preceding week, but an increase of 14 per cent above the similar week of last year; production totaled 32,070,000 feet, representing a decrease, on the average, of 1 per cent below the week before, but an increase of 8 per cent above the like week of the past year.

Orders on hand at these 122 mills, on October 24, totaled 76,032,000 feet, equivalent to 3,621 cars. This represents an increase of 5 per cent above the aggregate unfilled order file at the close of the preceding week.

Total stocks on hand October 24, at 102 reporting mills, aggregated 330,245,000 feet, or 86 per cent of normal and 3 per cent above this time a year ago.

Hardwood Meeting at Memphis

MORE than 1,000 manufacturers and representatives of hardwood interests from all parts of the Southern producing territory are expected to attend the general meeting of the Southern Hardwood Producers to be held November 17 at Memphis, Tenn. Discussions will center on ways and means to further the industry in an effort to have Southern hardwood products take their place in commodity consumption.

Southern Pine Meeting

NUMEROUS questions of importance to the Southern pine industry and to the lumber industry in general are to be considered at the Fall meeting of the Southern Pine Association to be held in New Orleans, November 12-13. It is expected that sessions of various Association committees, including those of the Board of Directors, executive and trade promotion, will be held on November 11, preliminary to the general sessions. Secretary-Manager H. C. Berckes, reports a large attendance of Southern pine manufacturers from all Southern states is expected.

As this meeting comes immediately following the national elections, it will afford members of the industry opportunity to consider developments in the political and business situation and make plans for the future. Association activities, particularly trade promotion work, will be thoroughly reviewed and action and policy on various matters will be decided.

Good Lumber From Second-Growth Pine

South to Continue to Produce a Large Percentage of High Grade Material

MANY lumber companies and other timberland owners in the South have been under the general belief that second-growth timber would yield only low-grade material. Many foresters, too, have looked to the West Coast for the production of choice lumber in the future even though they agreed the South would always produce a large supply of low quality lumber.

Recent selective logging studies by the Southern Forest Experiment Station, New Orleans, show that second-growth shortleaf-loblolly pine does produce high quality lumber. A total of 280 acres of typical second-growth timber, of which approximately one-fourth was old-field type, was logged in such a manner that only 50 per cent of the volume of the saw-timber was cut. In this study all trees over 17 inches in diameter, with the exception of a few choice fast growing individuals, were cut. Also, all crooked and defective trees from 13 inches to 17 inches in diameter were removed. Thus the portion of the stand removed contained all the poor trees as well as the slower growing mature timber. In a mill-scale study of the material removed in this cutting B & B lumber amounted to 20 per cent of the total volume and No. 1 amounted to almost 30 per cent.

Reports from companies cutting second-growth timber are to the effect that the production of upper grades is considerably beyond expectations. Thus, the South, at least the shortleaf-loblolly region, is apparently not to become a large producer of low grade lumber but is to

continue to produce a large percentage of high grade material. Should selective logging and forest management become widespread this would be a certainty.

Promote Better Building

Facts on Lumber and Construction Methods Made Available to Home Builders

MUCH interest is manifested by retail lumber dealers in the experimental campaigns now being conducted in Houston and Dallas, Texas, jointly by the leading lumber dealers of these two cities and the Southern Pine Association to promote better construction methods and the use of correctly manufactured, graded and seasoned lumber in home building.

The movement was initiated by groups of responsible lumber dealers of Houston and Dallas in both of which greatly augmented activity in home building is underway. One purpose of the movement is to prevent a recurrence of "jerry-building" which has caused dissatisfaction, disappointment and monetary losses to individual home owners.

The builders and manufacturers are providing a complete building service for the people of those cities, including information and protection for home builders on their building problems.

A small booklet, entitled "Questions Before the House," designed to be of service to home builders is available for free distribution by the Southern Pine Association, New Orleans. It contains practical information concerning lumber and construction methods which are considered of much benefit to individual home builders. Chapters in the booklet deal with the character and quality of lumber, the necessity for securing lumber that is correctly manufactured, graded and seasoned for building purposes; the importance of special attention to certain features of the house; grades of lumber recommended for use for specific purposes, and correct principles of construction to insure safety, durability, attractive appearance, comfort, convenience, economy in original cost, and minimum of expense for maintenance.

Lumber Buyers Guide

A NEWLY revised edition of the "Buyers Guide," the official directory of subscribers to the Southern Pine Association, now is ready for free distribution by the Association. This booklet is of value to retail lumber dealers, other distributors and industrial users of lumber since it gives data concerning the various member companies and individual manufacturers, location of their plants, capacity, equipment, railroads serving them, species of output, items manufactured and specialties of the mills. Southern pine manufacturers are listed alphabetically and by states.

Warning!

ON GUARD AGAINST TIMBER'S PUBLIC ENEMY No. 1



**INDUSTRY
TRANSPORTATION
PUBLIC UTILITIES
HIGHWAYS
MUNICIPALITIES
MINES.....**

ARE SAVING MILLIONS BY TREATING TIMBER

● Treated timbers last from 3 to 10 times longer than untreated timbers. This means expensive replacements are less frequent, thus saving millions each year. Rot-proof your timbers with GRASSELLI CHROMATED ZINC CHLORIDE. This improved salt treating reagent has definitely increased preservative properties against rot, as well as being termite repellent and fire retardant. Write us for your nearest commercial pressure treating plant.

E. I. DU PONT DE NEMOURS & COMPANY, INC.

GRASSELLI CHEMICALS DEPARTMENT

Cleveland, Ohio



NOVEMBER NINETEEN THIRTY-SIX

ROT

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GOOD ROADS AND MOTOR TRANSPORT

Preparing Valuable Information for Road Builders

New Orleans Convention in January Will Be of Importance to All Highway Interests — MANUFACTURERS RECORD to Feature South in Road Building in Special Review Number

MEMBERS of the highway industry and profession will be given opportunity to make intensive study of all major phases of highway and street operations at the Annual American Road Builders' Association convention in New Orleans, January 11-15. More than 25 committees have been organized under competent chairmen to take charge of the major groups of subjects to be discussed. The scope of the work that is being undertaken by these committees sets an all-time record both in the extent of the subject matter covered and in the number of persons engaged in compiling the reports.

Among the principal topics to be presented before the Association at New Orleans are:

- Contract System vs. Day Labor
- Gas Tax Diversion
- Development of Highway Construction Equipment
- Highway Legislation
- Roadway Drainage
- Safe Highways
- Stabilized Road Construction
- County Road Construction
- Grade Crossings
- Street and Highway Maintenance
- Municipal Traffic
- Federal Aid to Municipalities

In this broad coverage of highway work and problems, the Committees are arranging a program that will treat every angle of the highway question. It assures a meeting at New Orleans that will be of importance to all highway interests.

As this will be the first time that the American Road Builders' Association has held its annual convention and equipment exhibit in the South, it affords an unusual opportunity to Southern highway interests to show what this section has accomplished. The MANUFACTURERS RECORD, as a pioneer in the Southern good roads movement, has for many years co-operated with highway officials, engineers, contractors and producers of materials and equipment in promoting the soundest development of Southern highways. This work has been carried on in the regular editions of the MANUFACTURERS RECORD and in special annual issues. For the forthcoming convention in New Orleans, it will feature "The South in Road Building" in its January Monthly Construction Bulletin which is to be given wide distribution among the highway building industry in advance of the meeting. It will cover major subjects of vital interest to officials, engineers and contractors; review the progress that has been

made in Southern road building, and show the volume of proposed work as well as cite some of the pressing needs to make highways better and safer at lower cost of building and maintenance to more adequately serve the growing motor vehicle traffic of the 16 Southern States.

At the beginning of last year there were more than 1,188,000 miles of local and State highways in the South, nearly 39 per cent of the country's total road mileage. While in recent years more than \$300,000,000 annually have been spent on Southern highway improvements, there remains much to be done. Of about 262,000 miles in the State Highway Systems of the South, approximately 155,000 were surfaced and only 41,000 miles were of high type paving. About the same proportion of paved to surfaced mileage prevails in the rest of the country.

With the great mileage of unimproved and secondary roads not under State highway control and the amount of work still to be done on the State Highway Systems, an enormous volume of road building in the South necessarily must be undertaken in the future if this section is to keep pace with the demands of modern traffic.

Highway Safety

ONLY by first building safe highways can any degree of highway safety be attained, is the view of Charles E. Hodges, Jr., President of the American Mutual Liability Insurance Co. He states that most of our road building thus far has been guided principally by economic considerations and by the desire of car owners to ride in greater comfort and at greater speed. When public safety also has been taken into account, it usually has been incidental in the planning of the road. Political battles have been fought as to where a major traffic artery should be constructed and that decisions were reached on the basis of financial profit to the greatest number of voters and not on the relative merits of competitive routes from a transportation and safety standpoint.

Highway Research Meeting

THE 16th Annual Meeting of the Highway Research Board will be held in Washington, D. C., November 17-20. Many phases of highway development and construction have been under intensive study during the past year and reports of these studies will be presented and the problems discussed. Topics include:

- Highway Design; Roadside Development; Materials and Construction; Maintenance; Traffic and Safety; Soil Investigations; Finance and Economics.

Grade Crossing Removal

Rapid Progress in \$200,000,000 Program—
\$66,939,000 Allocated to the South
\$33,942,000 Under Construction

EELIMINATION of grade crossings is proceeding at a rapid rate since the allocation last year of \$200,000,000 of emergency relief funds, states the Bureau of Public Roads. The program calls for the elimination of 2,097 existing grade crossings, 320 old grade-separation bridges will be rebuilt, and 1,037 crossings will be protected by the installation of safety gates, flashing signals or other safety devices. Construction of bridges to carry the highways under or over railroads will wipe out 1,579 crossings; the remaining 518 will be avoided by relocation of the highways.

Of the total expenditures for the removal of the grade crossing hazards, \$66,939,882 are allocated to the Southern States. So far completed projects in the South amount to \$5,215,206, those under construction \$33,942,915 and \$12,418,583 have been appropriated, with approximately \$15,362,178 remaining to be used.

The status of the work to date in the South is as follows:

Number Jobs	Completed	Under Construction	Approved
Separation	81	309	102
Relocation	38	79	47
Reconstruction ..	15	45	20
Protection	8	3	364

Road Tax Diversion Increases

DIVERSION of taxes, paid by road users, to other than highway purposes amounted to \$146,449,000 in 1935, or an increase of more than \$24,000,000 over the diversions in 1934. In the South the highway tax money used for miscellaneous purposes amounted to \$32,916,000. When these taxes were first levied upon the motor vehicle users of the nation they were collected for the purpose of building and maintaining highways. Not only is it a special class tax but it is a glaring example of how politicians have broken faith with the motor vehicle users of America.

Efforts are being made in some states to further tap this "easy" source of revenue at the expense of the motoring public. However, movements are under way to check this diversion of road funds. Maine voters have approved a referendum bill prohibiting such diversion and Commissioner H. G. Shirley of the Virginia State Highway Department has suggested that the Virginia State constitution be amended to prohibit diversion of highway funds by a popular referendum.

The use of funds derived from motor vehicle taxes or gasoline taxes should not be for any purpose other than for highway and bridge construction and maintenance.

A Rare Opportunity—



—to reach 5,000 Men Who Will Place The South's Share of a Billion Dollars for Roads and Bridges

For the first time the American Road Builders Association will meet in the South—at New Orleans, the week of January 11th.

While booths can be rented to exhibit models, no space is available to exhibit heavy equipment. But the DAILY CONSTRUCTION BULLETIN will issue a "Highway Feature Number" one week before the Convention opens—offering manufacturers and others the opportunity to tell a full story of their heavy equipment and contractors equipment and supplies.

This important issue of the DAILY CONSTRUCTION BULLETIN will go to a hand-picked group of more than 5,000 state, city and local officials; Federal engineers in the 16 Southern States, who control the purse strings of public highway construction and are supported by Federal aid, now authorized to extend through 1939. Included in this circulation will also be contractors, engineers and principals mentioned in our DAILY CONSTRUCTION BULLETIN during 1936. That is, all bidders on major contracts and sub-contractors.

Space Rate only \$60.00 per 7x10 page. Write today for full details.

HIGHWAY FEATURE NUMBER

*Appearing a week before the American Road Builders Convention
New Orleans, January 11th to 16th, 1937*

MANUFACTURERS RECORD

DAILY CONSTRUCTION BULLETIN

BALTIMORE, MARYLAND

EQUIPMENT

NEW AND IMPROVED

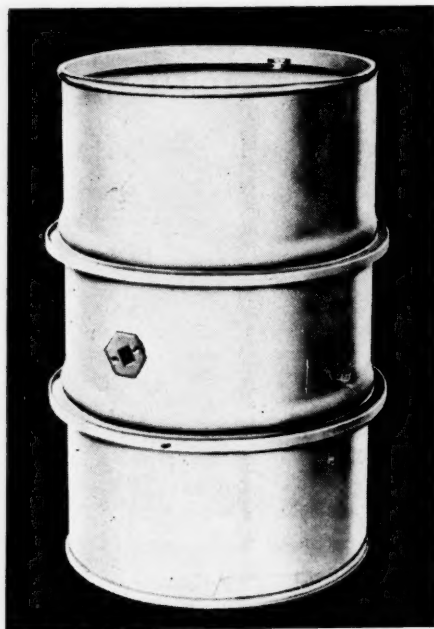
Horizontal Three-Stage Compressors

Worthington Pump and Machinery Corporation, Harrison, N. J., offers an improved line of single horizontal three-stage compressors for pressures from 750 to 2500 pounds, which are declared to be particularly well suited for higher pressures, since the compression cylinder requires only one packing box which is subjected solely to moderate pressures. Leakage is thus reduced to a negligible and controllable factor, an especially desirable feature when compressing valuable or inflammable gases. A sectional view of the compressor, with detailed specifications, is shown in Bulletin L-611-B12.

Shipping Containers With Stainless Steel Interior

To satisfy a demand for a moderately priced drum that offers corrosion resistance to food products, intermediates, acids, solvents, pharmaceuticals and other materials, The Stevens Metal Products Company, Niles, Ohio, announces a stainless clad steel shipping container. In the production of this container, it was necessary to seek a less costly material than solid stainless steel, nickel or other alloys. The company found such a material, it is announced, in IngAclad Stainless Clad Steel which has a 20 per cent layer of 8-15 stainless steel inseparably bonded to soft steel. IngAclad Stainless Clad

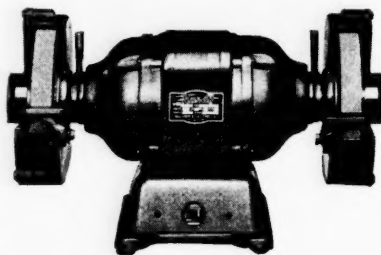
Stainless Clad Steel Drum



Steel is a product of the Ingersoll Steel and Disc Division, Borg-Warner Corporation, Chicago, and is widely used by fabricators of tanks, vats, tables, conveyors, hoppers, etc., in serving the chemical, food, textile and allied industries.

Baldor Electric Grinder

Designated as Type 3240, a new grinder announced by the Baldor Electric Company, St. Louis, Mo., is powered with a Capacitor type motor which will not burn out, according to the manufacturer, even though repeatedly overloaded. Rating of the motor is $\frac{1}{2}$ horsepower, 3450 r.p.m.,



Type 3240 Baldor Grinder

single or three phase. Important features of the unit include: closed guards, tapered end bells, clearance type motor frame, permitting easy grinding of long or oddly shaped pieces. Manufacturers of electric motors, grinders, buffers, etc., the company is represented in Atlanta, Dallas and Kansas City.

Doall Etching Pencil

The Doall Etcher, a new electric pencil, has been introduced by Continental Machine Specialties, Inc., Minneapolis, Minn. Writing on steel with the electric pencil is a process of arc welding in which the tip of the pencil vibrates to permit the miniature arc to be interrupted and produce the etching effect. In the Doall Etcher, it is claimed that an entirely new principle has been used to accomplish the vibration of the point of the pencil, a special coil in the pencil being attached directly to the writing point. Pure tungsten is used for the point to resist heat and wear.

Bin and Stack Luminaries

Especially designed to concentrate light on vertical and horizontal surfaces, a new luminaire is announced by Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., for lighting book aisles, stock room bins, stacks, etc. The luminaire is unique in appearance, efficient and neat, and inconspicuous when lighted or unlighted. It consists of a reflector and socket cover with socket, the reflector being designed to direct more light to the working plane with two triangular vanes located opposite each other.

Fire-Resistant Finish for Canvas

Promising to fill a recognized need in the industrial field, a new fire-resistant cotton duck has been produced by William E. Hooper & Sons Company, Baltimore and Philadelphia, after more than ten years' research to perfect the fire-resistant qualities of the finish. "Fire Chief," as both the treated fabric and the finish itself are known, offers a unique advantage in the fact that its fire-resisting properties are impervious to the action of water or the elements. It is available either as a finished fabric or as a separate finish known as "Hooperwood Fire Chief Compound."

Alemite Fitting Does Own Tapping

As an effective means of cutting production costs, a new development in high pressure lubrication has been announced by the Alemite Division of Stewart-Warner Corporation, Chicago, Ill. This new device is the Alemite Hydraulic Threaded Drive Fitting, which makes its own thread when driven into a $\frac{3}{8}$ -inch hole. At present there are four types of this fitting: Model 1720, a straight fitting; 1721, a 30-degree elbow; 1722, a 67 $\frac{1}{2}$ -degree elbow, and 1723, a 90-degree elbow. All are cyanide hardened so that they may be applied to steel up to 42 to 48 Rockwell hardness. They may also be applied to aluminum, aluminum alloys, malleable iron, steel castings and forgings. The original application is accomplished with special drive tools provided by Alemite.

Universal Motor Concrete Vibrator

Augmenting its popular line of equipment, Mall Tool Company, Chicago, Ill., manufacturers of concrete vibrators and surfacing machines, announce a new type of universal motor vibrator, designed to operate from either 110 volt, A. C. or D. C. current, or 220 volt A. C. or D. C. current, delivering 9000 vibration frequencies per minute. Of light weight, the



power unit may be carried in one hand and the vibrator operated by the other. Mall universal motors are designed and manufactured to deliver the maximum horsepower to the job of compacting the concrete, and are equipped with a special heat control to prevent burn-outs, while an oil filter is provided to exclude dirt and other foreign matter.

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BALTIMORE, MD.

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Distributors of Sand-Gravel-Commercial Slag

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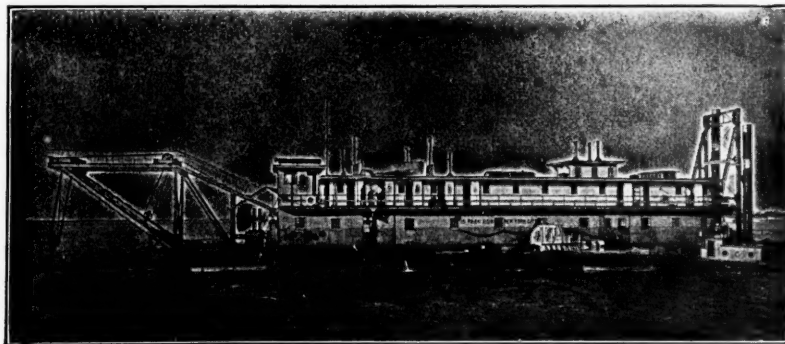
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**We are especially equipped to execute all kinds of dredging,
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**Correspondence invited from corporate
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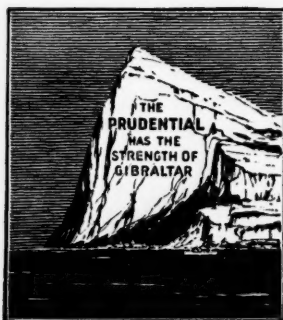
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EDWARD D. DUFFIELD, President
HOME OFFICE. NEWARK, N. J.

FINANCIAL NEWS

N. & W. Railway New President

W. J. JENKS succeeds the late A. C. Needles as president of the Norfolk & Western Railway Co. Mr. Jenks, who has been vice-president in charge of operations of the road, came up from the ranks as did his predecessor. He is unusually well equipped for the responsibilities of his new position by his long experience and record of accomplishment. He has been a railroad man all his life, advancing from one position to another in almost every branch of the work.

The Norfolk & Western Railway Co. has been always far-seeing in its selection of capable men for high places—men who carry on the tradition of a railroad that has been outstanding in its operating and financial record as well as in its service to the people of its territory. The road bed and physical equipment of the N. & W. are always kept up to the highest standard and it is probable a return of \$21 a share will be shown this year on its common stock. Last year it earned \$17 a share. It has paid dividends throughout the depression and retired \$81,000,000 of bonds in twelve years.

Mr. Jenks will have the cooperation and best wishes of the people of the territory and business men generally in his new responsibilities.

Social Security and Surplus Tax Laws

ENOUGH has been said during the political campaign about unemployment insurance and old age pensions to acquaint the public with the major provisions of the Social Security Act, which many corporation lawyers think will be declared unconstitutional.

The tax, of course, will be passed on to the public wherever possible and it will tend to decrease employment rather than otherwise. The tremendous amount of labor involved in carrying it through, both on the part of employers and the government, is a practical hindrance to its operation.

In many offices perplexing questions in connection with the surplus tax are being considered. The objective, it was said, was to increase the spread of money, but many surpluses are not in cash. They are represented by inventories and plant. This will force borrowers to go to their bankers for loans, which was another objective for the law and that brings up other questions.

In the meantime business bookkeeping is proving a complicated matter in these modern times.

A dispatch from Washington to the *Wall Street Journal* says "a majority of the Washington tax consultants interviewed admitted they knew of no better way for corporations to retain cash earnings and at the same time avoid surtaxes on undistributed earnings than to pay dividends on one class of stock in stock of another class. Some suggested the alternative of paying dividends in notes, debentures or other promises to pay."

\$50,000,000 Insurance Dividends

WITH the payment of one dollar October 21 to Boot Mills, Lowell, Mass., the American Mutual Liability Insurance Company, Boston, Mass., had paid total dividends to policyholders of \$50,000,000. The company was organized nearly fifty years ago.

(Continued on page 60)

92% OF STOCKHOLDERS OWN 100 OR LESS SHARES EACH

Small investors comprise the great bulk of the owners of Associated Gas and Electric Company. Of all the 135,048 holders of the Company's stocks—

92% own 100 shares or less, of which
49% own 11 to 100, and
43% own 10 or less.
Only 8% own more than 100.

Distribution of principal amounts of the Company's debentures and convertible obligations also shows wide holdings by small investors:

Amount of Holding	% of Amount Outstanding	Cumulative %
\$100 or less	.9	.9
\$101 to \$1,000	19.9	20.8
\$1,001 to \$5,000	35.7	56.5
\$5,001 to \$10,000	12.7	69.2
\$10,000 or more	30.8	100.0

Attacks on utilities affect most severely men and women of modest means who are the great body of utility investors. The 337,738 registered and coupon-security holders of the Associated System represent a cross-section of American citizens.

ASSOCIATED GAS & ELECTRIC SYSTEM



ON OUR SYSTEM

PRECIOUS METALS ARE MELTED

In quantities as small as one troy grain

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THE TINY JEWELER'S TORCH, OR THE MASSIVE OPEN HEARTH

Different metals, different quantities, different fusions

BUT, THE ONE FUEL—NATURAL GAS

If your heat need is at either extreme, or anywhere between

CONSULT YOUR LOCAL GAS COMPANY

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SOUTHERN NATURAL GAS COMPANY

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ACI Quality Coals are distributed by the authorized agents listed in "Where to Buy ACI Coals." Write for this folder today.

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Correspondence invited

BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, *President*
BALTIMORE, MARYLAND

Member Federal Reserve System—Member Federal Deposit Insurance Corporation

Financial News

(Continued from page 58)

Opportunity

THE steel industry is beginning to reflect a profit from operations in dividends declared and expenditures for plant expansions. Indications are that demand will continue.

Copper sold in the last week of October at 10¼ cents and producers are not letting it go any too freely at that price.

In summing up business comment from various quarters, it appears that fundamental conditions point to continued improvement. Demand that has been piling up is finding expression. One automobile manufacturer will not promise dealers delivery of a low priced car before January. Construction in the South is passing previous records. Residence construction is increasing and while houses are not the size they were in boom times, the number being erected is increasing every day.

There is said elsewhere in this issue the task before America is to develop its boundless resources. There is so much to be done to provide the wants of this greatest of all markets, wants that can be filled not alone by the processing of primary raw materials, but through the development of an endless number of by-products, that it is impossible to contemplate the future of the country without being thrilled by the prospect that confronts every individual capable of constructive activity.

Youth particularly has been passing through several dismal years, and older men have deplored the lack of outlook. Younger people have not had the privilege during the depression of knowing what a beautiful thing it is to see results coming steadily and encouragingly from creative business enterprise. Youth that will carry on requires an outlook, as older men do.

New Financing

THE *Journal of Commerce* in analyzing a recent report of the Securities & Exchange Commission, calls attention to the amount of new financing that was done in the preceding quarter. Last year not far from 90 per cent of new corporate issues registered with the Commission were for refunding purposes, while in the third quarter of this year, issues amounting to more than \$688,000,000 were registered. Out of this total, only 55 per cent were to repay former debt, as compared with 85 per cent in the third quarter of 1935.

Railway Earnings

ONE hundred and twenty-three Class I railroads, representing 97 per cent of the total operating revenue of the country, had a net operating income in September of \$68,749,443, which is \$12,666,339 more than the same month last year.

Gross operating income increased 16.2 per cent and gross operating expenses increased in the same month 13.7 per cent.

The tax bill, comparing September of this year with last year, increased 28.9 per cent. Class I railroads in the Southern District increased net operating income almost \$2,000,000.

Will The RFC Continue?

A QUESTION frequently asked is if the Reconstruction Finance Corporation will be continued. Its lending power expires February 1, 1937 and the authority to make loans already authorized for other than self liquidating projects expires February 1, 1938. Unless its charter is renewed upon expiration, liquidation of the corporation will ensue. A large proportion of loans already made has been liquidated. It has been ably managed and effective in its help.

MANUFACTURERS RECORD FOR

PROFITABLE MANUFACTURING DEPENDS LARGELY ON CORRECT LOCATION OF YOUR NEW OR BRANCH PLANT

IN ADDITION TO THE nationally and internationally known manufacturing plants that are now established in the BALTIMORE-WASHINGTON-ANNAPOLIS area, there are new plants coming into eastern areas and millions of dollars are being invested and still more are under consideration.

The famous Zeppelin Transport Company operating the Zeppelin and the Hindenburg is considering the area near Baltimore and Washington for its Western terminal.

The famous Martin airplane plant making the famous China Clippers and with its wide international trade is securely established in this area.

The ramifications of both the heavier and lighter than air ship manufacturing are great—there are the matter of engineering and design—the base materials to be made—propellers—parts—instruments—all require special conditions such as we believe our location offers.

LOCATION: Our 340 acres are on the new dual highway between Baltimore and Annapolis and near Washington, the nation's capital. Coastwise and ocean outlets—excellent rail connections—a location protected from hurricane and unusual storms—intelligent native labor—beautiful setting for employes homes among full growth oaks—excellent water and cheap power rates—splendid accommodations for families of workers with churches, schools, and recreational facilities—not forgetting the beautiful Chesapeake bay and adjoining rivers and creeks for travel and boating.

Write to us for additional information and for a special offer to an appropriate kind of industry.

**THE GLENBURNIE
DEVELOPMENT COMPANY**
GEORGE B. FURMAN, *President*
**1409 L Street, Northwest,
Washington, D. C.**

MEMO

N O T E
is the international trade mark of the Leipzig Trade Fairs.

*Put Feb. 28
on your calendar*

This date concerns your business. It marks the 16th annual opening of the Great Engineering and Building Fair at Leipzig, Germany. More than 2,500 firms will exhibit machinery (practically all in operation), equipment and manufacturing processes for every industry. These exhibits fill 17 gigantic buildings and 10 acres of outdoor space.

Only by covering this Fair (Feb. 28 to Mar. 8), can you know what the whole world offers in your business. You may not be in the market for any machinery or equipment. But you cannot fail to build profits out of the ideas you receive—and the opportunity to meet men in your own line of business from every civilized country of the world. At the same time, you can visit the General Merchandise Fairs (Feb. 28 to Mar. 5)—featuring 6,000 exhibits of finished and semi-finished goods.

Leipzig exhibitors come from 25 countries. More than 230,000 business executives, engineers and buyers from 72 countries inspect the exhibits.

Please write for Booklet No. 14 today. Let us help you determine the profit possibilities for your firm, offered by these Fairs... Leipzig Trade Fair, Inc., 10 East 40th Street, New York.

The 2,500 technical exhibits include:—building and construction equipment and sanitary engineering; electrical equipment; iron and steel products, mechanics' tools and materials, semi-finished products; machine tools for metals, wood, glass and similar materials; machinery and apparatus for food, food lux-

uries, chemical and ceramic industries, packing machines; machinery for textiles, paper and similar products and machinery for the graphic arts; power machinery, heating, foundry and gas fuel engineering; pumps, compressors, transportation and conveying equipment, etc. And probably 500 new inventions.

**THE GREAT ENGINEERING
AND BUILDING FAIR**
A DIVISION OF THE 700-YEAR-OLD
LEIPZIG TRADE FAIRS

« « LETTERS FROM READERS » »

South Is Entitled to More Equitable Freight Rate Base

BIRMINGHAM TRAFFIC ASSOCIATION
Birmingham, Ala.

Editor, MANUFACTURERS RECORD:

I have read with interest the articles contained on pages 38, 39, and 74 of the October MANUFACTURERS RECORD, regarding efforts of Southern traffic organizations to secure more relatively aligned basis of rates for application not only between points in the South, but between the North, East and the South.

Some of these days the Interstate Commerce Commission is going to realize the fact that the South is a part of the United States and will give us the same basis of rates which has been accorded the North and East for a long number of years. In the petition which has been recently filed, it is my opinion that we will prove conclusively to the Commission that we are entitled to a more equitable basis than is now in effect.

With the continued cooperation of your publication, as well as the newspapers of the South, I am sure that the Commission will realize the justice of our contention and give us at least some relief.

O. L. Bunn, *General Manager.*

Supplies the Facts

ROBERT L. RIGGS
Consulting Engineer
Daytona Beach, Fla.

Editor, MANUFACTURERS RECORD:

I have been reading the MANUFACTURERS RECORD for 27 years, from Charleston, S. C.; Spartanburg, S. C.; New York; Ottawa, Ont., and out to Winnipeg—back to Charleston, and now in Daytona Beach. You see an engineer takes his tent from the Sunny South to the Frozen North, by dog-team and motor car.

I sung the praises of the South all through the North, and you supplied the words. The South is in the saddle, and I am tickled pink we are getting the pulp and paper industry. Canada is nearly burnt and cut out, and our slash pine is going to put Dixie on the industrial map to stay, with its American born labor.

Your front page editorials are a knock-out and I mail them to my friends from time to time. I also like to see you go after the tax wasters, for after an interesting experience and some little saved, am afraid that it will be eaten in future taxes.

Robert L. Riggs.

Appreciation from a New Subscriber

Asheboro, N. C.

Editor, MANUFACTURERS RECORD:

The MANUFACTURERS RECORD helps me to keep up with what is going on in the South. I recently started reading its interesting pages. Now I wouldn't be without it.

L. L. Martin.

Time Profitably Spent in Reading Manufacturers Record

SOUTHERN STATES INDUSTRIAL COUNCIL
INCORPORATED
Nashville, Tenn.

Editor, MANUFACTURERS RECORD:

Let me take occasion again to say that I doubt if I spend any of my time more profitably than that which I spend in reading the MANUFACTURERS RECORD. That means, of course, that I do not deny myself the pleasure more than I can possibly help.

J. E. Edgerton, *President.*

Straightforward and Fair in the Presentation of Facts

THE TEXAS COMPANY
Oklahoma City, Okla.

Editor, MANUFACTURERS RECORD:

I do not write to hand you any advice, but merely to commend you on the fair and fearless manner in which you explain things in the MANUFACTURERS RECORD from time to time.

One, who is constantly busy in carrying out his own work, has not time to keep posted on the many and varied laws that are being enacted these days.

The RECORD brings to one the various changes in our laws in a straightforward, intelligent way, boiled down so that one need not do a lot of unnecessary reading to become informed upon the various subjects treated.

To me it always seems to wish to give facts and to be fair on all subjects.

J. E. Williams.

Indispensable in Its Service to the South

CHAMBER OF COMMERCE
West Point and Clay County
West Point, Miss.

Editor, MANUFACTURERS RECORD:

In carrying on the work of a "community powerhouse" (Chamber of Commerce) I find the MANUFACTURERS RECORD indispensable. It enables me, and in turn our organization, to keep posted on the current trends of industry, on the new developments in the field of chemistry and new uses for our agricultural products, our raw materials and natural resources of the South.

We like the independent and courageous attitude of your editorial department and the intelligent fact-finding and summing up of all important and pertinent questions, political or otherwise. We want *both sides* of every question of sectional, regional or national importance.

In its field, no other periodical has ever approached the MANUFACTURERS RECORD in its service to the South over the long period of years,—none that has so consistently manifested an interest in its greater development, nor which has the power and influence to carry on to still greater prestige and accomplishments in the future.

J. T. Ruble, *Secretary.*

Able Advocate of Southern Development

WYMAN, GREEN & BLALOCK, INC.
Real Estate - Insurance
Bradenton, Fla.

Editor, MANUFACTURERS RECORD:

I have appreciated and enjoyed the MANUFACTURERS RECORD for more than twenty-five years. It has ably advocated the development of the South, in which I am interested. No other publication that I am familiar with has done this so efficiently.

You have successfully undertaken the leadership in this great work. I congratulate you on your accomplishments.

I considered the late Mr. Richard Edmonds the greatest advocate the South ever had and that his work accomplished more than any man in his day.

You have continued the work in the same fearless and efficient manner.

E. P. Green.

Valuable to Management and Labor

BARNWELL BROTHERS, INC.
Burlington, N. C.

Editor, MANUFACTURERS RECORD:

I have been reading the MANUFACTURERS RECORD for the past twenty years. It is certainly a magazine devoted to the upbuilding of the South and is doing its part in that direction.

To relate a little instance that occurred a short while ago. When standing before a local newsstand, I heard a man, evidently a laborer, ask for the latest issue of the MANUFACTURERS RECORD. As the newsstand did not have one, I told the man I could probably furnish him a copy, but also stated that I was curious to know why he was interested in the MANUFACTURERS RECORD. His reply was:

"Mister, I am a construction laborer and I am just about to finish up here and want the MANUFACTURERS RECORD to see where to go next." I immediately put him in my automobile and sent him out to my home where he was given a copy of the RECORD which I had that day carried out. In reflecting upon the incident it was easy to understand the man's interest.

R. W. Barnwell.

Never Ending Source of Reliable Information

DEPARTMENT OF AGRICULTURE AND IMMIGRATION
State of Louisiana
Baton Rouge.

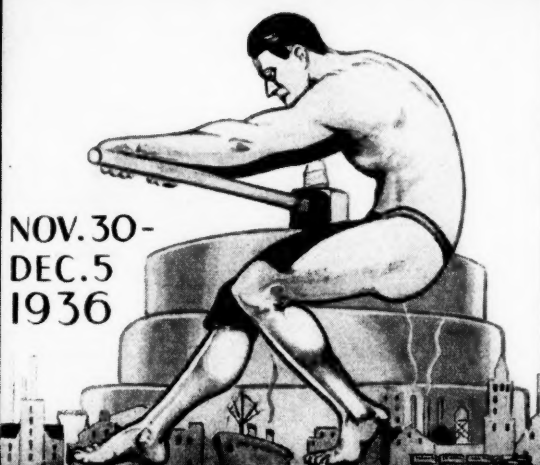
Editor, MANUFACTURERS RECORD:

We think the MANUFACTURERS RECORD is a most valuable asset to any man. To us it is a never ending source of reliable information. It has been very helpful in the past. We expect, always, the next issue to be greater than the copy we just read.

Harry D. Wilson, *Commissioner.*

*Join these
engineers
and executives*

AT THE



NOV. 30-
DEC. 5
1936

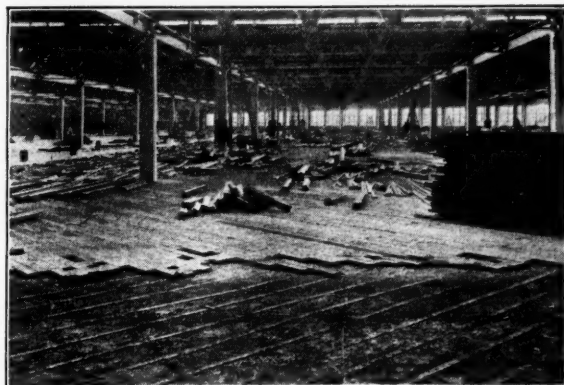
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eration, transmission, control and appli-
cation. **Forty thousand** engineers and
executives are expected to attend. Plan
now to join them.

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NOVEMBER NINETEEN THIRTY-SIX



Salt treated sub-flooring laid on Creosoted stringers and nailing strips, each treated by our Pressure Process.

The Permanence of **TREATED WOOD** *in Building Construction*

Eliminate the need for expensive Re-
placements and Repairs by the use of
Structural Lumber preservatively treated
by our Pressure Processes with Standard,
approved chemicals. Treated Lumber has
many times the life of Untreated Lumber
and will give a lifetime of satisfaction
with low maintenance costs.

Detailed Information, Prices and, if
necessary, the services of one of our
Engineers may be had without cost to
you, by writing our territory Sales Office
or communicating direct with

THE WOOD PRESERVING CORPORATION

Koppers Building

Pittsburgh, Pa.

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Reed City, Mich. . . St. Louis, Mo. . . Superior, Wis. . . Texarkana, Ark.-Tex.

INDUSTRIAL NEWS

Laib Company Represents New York Belting

The New York Belting and Packing Company, Passaic, N. J., announces the appointment of Laib Company, Inc., 754 South First Street, Louisville, Ky., as distributors of N. Y. B. & P. products in the Louisville territory.

Tennison Distributes Toncan Sheets

Toncan Topics, official publication of Republic Steel Corporation, Cleveland, Ohio, announces the Tennison Manufacturing Company, Houston, Tex., was recently appointed a distributor of Toncan Iron Sheets.

National Foreign Trade Convention

The program of the twenty-third National Foreign Trade Convention to be held at the Stevens Hotel, Chicago, Ill., November 18-20, will cover a wide range of subjects affecting international commerce and relations, which will be discussed by nationally prominent authorities. Included in a tentative list of speakers are Walter C. Teagle, President, Standard Oil Company of New Jersey; Harper Sibley, President, Chamber of Commerce of the United States; Powel Crosley, Jr., President, Crosley Radio Corporation; and James D. Mooney, President, General Motors Export Company.

New Power Developments

At the Twelfth National Exposition of Power and Mechanical Engineering, to be held at Grand Central Palace, New York, November 30 to December 5, opportunity will be given to view new developments in materials, equipment and machinery. It is estimated that 40,000 engineers and executives will attend the exposition for the purpose of seeking ideas and seeing equipment they can use. Many new products are to be displayed. An automatic stoker equipment will feature operating exhibits of a new conical distributor. Steam accessories will include an exhibit of seamless copper and welded stainless steel flanges, also a line of metal flanges for all purposes, of interest to manufacturers of steam traps, oil field, pumps and heating specialties. In the field of piping, valves and fittings, a variety of products will be displayed, and there will also be displays of fans, blowers and unit heaters, motorized speed reducers, seamless flexible metal hose and fittings, machine tools, etc. Charles F. Roth, Secretary, with offices at the Grand Central Palace, is in direct charge of the Exposition.

Koppers Company Reorganization

The name of Koppers Gas and Coke Company, Pittsburgh, Pa., has been changed to Koppers Company it is announced, and three subsidiary companies have been or will be dissolved to become divisions of the parent company. These subsidiaries are the Koppers Construction Company, which becomes the Engineering and Construction Division; Koppers Products Company, which becomes the Tar and Chemical Division, and The Bartlett Hayward Company, which becomes the Bartlett Hayward Division. The Western Gas Division of The Koppers Construction Company becomes a division of Koppers Company, as does the American Hammered Piston Ring Division of The Bartlett Hayward Company.

The Maryland Dry Dock Company, The White Tar Company of New Jersey, Inc., and The Wood Preserving Corporation remain as subsidiaries of Koppers Company. Officers of the former subsidiaries will become officers of Koppers Company, and to avoid similarity of title the name of The Koppers Company, parent company of Koppers Company, will be changed to Koppers United Company. It is understood that a refunding of Koppers Company's bonds is contemplated as a further step in the reorganization program.

Activities of Koppers Company, through its subsidiaries and divisions, include designing, construction and operation of by-product coke plants, gas producers, tanks, holders and other gas apparatus, wood preserving plants, and dry docks, and the production and sale of motor benzol, ammonium sulphate, naphthalene, phenol, Tarmac road materials, roofing products, tar acid oils, pitch and other coal tar products, machinery and steel mill equipment, piston rings and packing.

TWA Starts Air Freight Service

Air freight service utilizing special planes equipped as "flying box cars" was inaugurated recently by Transcontinental & Western Air, Inc., Kansas City, Mo., according to Jack Frye, president. Multi-motored all-metal airplanes with a payload capacity of 3500 pounds are being used to start the service, operations at first to be conducted between New York and Chicago with intermediate stops at Philadelphia, Pittsburgh, Columbus and Indianapolis.

Bucher Made Executive Vice President

The board of directors of the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., has elected George H. Bucher Executive Vice President, with headquarters at Pittsburgh. He has been connected with the Westinghouse organization since 1909.

Type "EQ" Elwell-Parker Trucks

Declared to be the smallest trucks in the industry capable of handling skids of the same size and capacity formerly used with hand lift trucks, type "EQ" trucks made by The Elwell-Parker Electric Company, Cleveland, Ohio, have a capacity of 3000 pounds. A low lift platform machine, the principal units of its construction are standardized with other Elwell-Parker trucks, tractors and cranes, providing interchangeability and eliminating the need of carrying large stocks of spare parts. These trucks are described in a bulletin which the company has issued.

(Continued on page 66)

"Make it simpler to handle it faster"



P & H BANTAM WEIGHTS

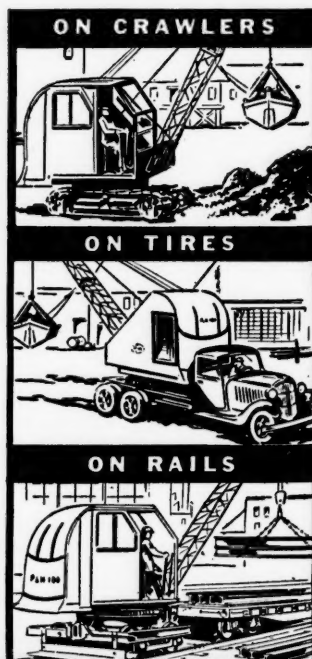
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"Outside" Handling Jobs

● There are no restrictions as to when, where or what sort of materials you handle with this fast truck crane on any light truck chassis. Anything from sand to structural steel you can pick up around the plant with clamshell or hook; or you can take it around town at truck speed on special work. It's simpler to use, handles more jobs—that's why it's always busy. Its moderate price means a lower investment in handling equipment for you. A post card is the easy way to get the facts. Ask for bulletin TM-1.

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TANKS:	Standpipes	Angle Rings
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Truck	Process	Stacks
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Acid Tanks	Digestors	Jacketed Tanks	Settling Tanks
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Steel Plate Fabricators

TANKS, PRESSURE VESSELS, STACKS, BREECHINGS, ETC.

Estimates cheerfully given.

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Water Filters for Municipalities, Textile Finishing Establishments, Rayon Manufacturing Plants, Swimming Pools, Raw Water Ice Plants, Laundries, etc.

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Filtration and Pumping Equipment

For Water Works and Swimming Pools
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Another Cole Product

Our various fabricated COLE steel products also include Smokestacks and Standpipes and you'll find them to stack up to your needs in every way. These stacks made to specification from your designs or ours, which our Engineering Department will gladly furnish. Put your Stack—also stack of problems—up to us.

OTHER COLE PRODUCTS ARE:

Tanks and Towers	Nickel-clad and Stain-
Bins and vats	less Steel Vessels
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For Warm Relations in Fabrication

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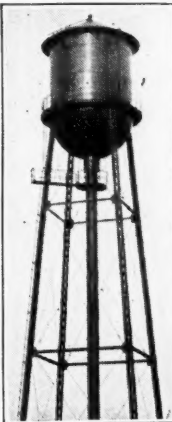
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WELDED OR RIVETED CONSTRUCTION
This applies to field as well as shop built
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Write us for information and quotations

Chattanooga Boiler & Tank Co.
CHATTANOOGA, TENN.
TANKS

INDUSTRIAL NEWS

(Continued from page 64)

Cletrac Appointment Announced

Resigning as account executive for the Burns-Hall Advertising Agency, Milwaukee, Wis., C. W. Garrison has been appointed Advertising and Sales Promotion Manager of The Cleveland Tractor Company, Cleveland, Ohio. Prior to his connection with Burns-Hall, Mr. Garrison was a director and account executive of Freeze-Vogel-Crawford, Milwaukee advertising agency, serving the Allis-Chalmers Manufacturing Company Tractor and Texrope Drive divisions, in addition to manufacturers of other industrial equipment.

Southern A. C. F. Bus Deliveries

Southern a.c.f. bus deliveries in the period from September 21 to September 30, according to The A. C. F. Motors Company, a division of American Car and Foundry Motors Company, New York City, manufacturers of these units, included four Model H-15-P 28-passenger parlor cars for the Texas Bus Line, Inc., Houston; four Model H-13-S 30-passenger street cars for the Houston Electric Company, Houston, Tex., and two Model H-9-P 36-passenger parlor cars for the Florida Motor Lines, Inc., Jacksonville.

Sterling Engine at Power Show

In Space 64 at the National Exposition of Power and Mechanical Engineering to be held at Grand Central Palace, New York, November 30 to December 5, the exhibit of the Sterling Engine Company, Buffalo, N. Y., will include one of the Sterling Petrel 6 cylinder stationary engines, approved by the Associated Factory Mutual Fire Insurance Company and the National Board of Fire Underwriters, for direct connection to fire pumps at 1750 R.P.M. Other Sterling engines of various sizes will also be displayed.

Hercules Powder Acquires Subsidiary

Hercules Powder Company, Wilmington, Del., R. H. Dunham, president, has acquired the assets of its subsidiary, Paper Makers Chemical Corporation, which has operated as a separate company since October, 1931, when it became associated with Hercules. Business formerly conducted by Paper Makers Chemical Corporation will be continued by the Paper Makers Chemical Department of Hercules Powder Company. W. J. Lawrence, formerly president of PMC, has been elected a vice president of Hercules Powder Company and general manager of its Paper Makers Chemical Department.



"Jacksonville's Leading Hotel" The SEMINOLE JACKSONVILLE FLORIDA

CHARLIE GRINER, Manager

YOUR individual comfort and entertainment is a matter of great importance at this modern, fire-proof, home-like hotel located in the heart of down-town Jacksonville. Every room with tub and shower, soft water, steam heat, radio and ceiling fan...every bed with inner-spring mattress and individual reading lamps.

AIR CONDITIONED
COCKTAIL LOUNGE - COFFEE SHOP

Rates--Single with Private Bath
78 Rooms \$2.00 - 80 Rooms \$2.50
40 Rooms \$3.00 - 24 Rooms \$3.50
10 Sample Rooms with Private Bath \$4.00
Slight increase for double occupancy

Other J. B. POUND Hotels

HOTEL PATTEN
Chattanooga, Tenn.

HOTEL DESOTO
Savannah, Ga.

There are— Opportunities in FLORIDA for investment—

To learn of the many and varied opportunities for investment one should visit Florida and make a personal survey of the different sections of the State—

For undeveloped farm and grove lands, industrial sites and beach property on the East Coast of Florida—consult—

Model Land Company

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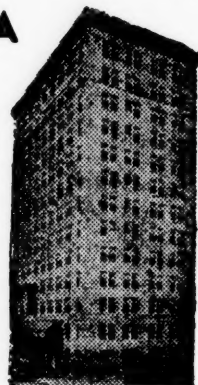
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RADIO IN EVERY ROOM

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IN EVERY ROOM

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of defense
for loyal workers*

● "Our stout PAGE FENCE is not only protective—it is constructive. Loyalty within the plant increases because every worker knows we erected that fence to guard him against violence, just as much as to protect our property from damage. Many a time reason has conquered rampage right at the fence line.

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Because no one metal is suitable for all fence conditions—PAGE alone offers a selection of superior fence metals—PAGE-ARMCO Ingot Iron, PAGE "ALCOA" Aluminum, PAGE Allegheny Stainless Steel, PAGE Copper-Bearing Steel, PAGE genuine Wrought Iron.

Located conveniently throughout the United States are 92 Page Fence Distributors who will gladly consult with you, without obligation, in best solving your fencing problem. They are prepared to recommend impartially the particular metal that will give you the best service, and to assume full responsibility for proper installation.

Write to any of the offices shown below for helpful literature and name of the Page Fence expert nearest you.

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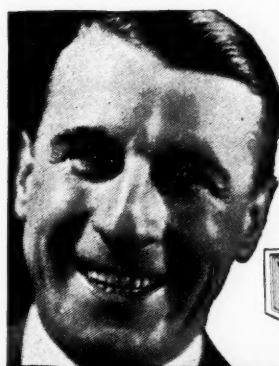
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This Label . . . Your Guarantee

The PAGE P-12 label identifies PAGE galvanizing which is guaranteed to withstand a minimum of 12 one-minute dips by the Preece Test. PAGE P-12 galvanizing applies not only to fence fabric but also to posts, top rail and fittings as well—your guarantee of maximum resistance to rust.

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Structural Steel for all Industrial Structures,
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Capacity 1000 Tons per Month. 3000 Tons in Stock

Carolina Steel and Iron Company

The Largest Steel Fabricators in the Carolinas
Greensboro North Carolina
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Structural Steel and Ornamental Iron
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Less in dollars and cents per square foot of floor space than any other permanent structure. Standardized design or "tailored-to-fit." Rigid, weather-tight. Quickly constructed by ordinary labor. Easily altered or relocated. Phone South 2040 for information.

MARYLAND METAL BUILDING COMPANY

RACE & McCOMAS STS. • BALTIMORE, MD.



Rural Electrification

(Continued from page 35)

REA Developments

Private power companies for many years have been developing their lines in rural areas. They have done this work as fast as economic conditions warranted and when such a policy was consistent with sound business management. The Federal government under its new power policy sought to bring about a more rapid expansion of electrical service in rural areas. On May 11 of last year, the Rural Electrification Administration was established to work out suitable methods for encouraging farm electrification. The progress made in this initial government promotion work resulted in making REA permanent for a 10-year period with an enlarged program.

In the past year REA has loaned or earmarked taxpayers money to the extent of \$23,000,000, for 127 specific rural electrification projects in 35 states. It is estimated that nearly 50,000 persons will receive current for the first time when these lines are finished. Among the advantages claimed by REA policies have been efforts directed towards reducing line construction costs by from \$500 to \$1000 a mile through the adoption of modern design and construction methods. The REA program resulted in

liberalizing line extension policies. Minimum guarantees have been reduced or abolished.

The first loan contracts for REA projects were signed last November, and while construction began immediately upon two or three, no Southern building under REA was undertaken until the spring of 1936. Under the Act of 1936, \$50,000,000 may be loaned for rural electrification during the current fiscal year and \$40,000,000 during each of the succeeding nine years. REA projects under way or approved in the South to October 7, amount to \$9,332,000 for 8,828 miles of line to serve over 39,287 customers.

Activity in Individual States

In detailing the development of rural electrification projects sponsored by the Government, may be cited the work in South Carolina. The State Rural Electrification Authority of South Carolina was created in March 1935 by the General Assembly. Under the auspices of this authority, over 7,000 miles of lines were surveyed and some 20,000 customers approached. A loan contract for the sum of \$542,528, was executed on November 6, 1935, with the Rural Electrification Administration in Washington, whereby they agreed to furnish that sum

for the construction of 511 miles of rural lines that would serve approximately 2100 customers in 17 counties of the state. Then in February 1936, another loan contract was executed for the sum of \$554,662, to be spent in constructing 516 miles of line to serve approximately 2,050 customers in 27 counties.

Actual construction of state project No. 1, began on June 9, 1936, the contract having been awarded to W. E. Callahan Construction Co., Dallas, Tex., for the construction of 147 miles to serve 600 customers. The contract price was \$105,189 and covered all costs with the exception of customers' meters, which were to be purchased and installed by the authority itself. Contracts for the remaining portion are to be let.

There are now on REA files numerous requests for additional surveys, which will be made as time and finances permit, and as these surveys are made, additional projects will be formed and submitted to Washington with application for construction funds.

The Rural Electrification Authority of North Carolina, in a report to Governor J. C. B. Ehringhaus, stated that authorization and construction of 2,322 miles of rural lines had been made. Of this total, 1,249 miles were completed and in service on June 15, 1936. As of October 1, approximately 1,671 miles of rural lines have been built since the creation of the authority with 532 additional miles now under construction and 2,123 more authorized. The number of rural customers, farms and other enterprises, now served is 24,609 and the estimated cost of the lines built, under construction and authorized is \$4,635,000.

DECLINING COST OF ELECTRICITY

GREAT stress has been given to the Government's entry into the power field and its promotion work to increase the use of electricity and bring about a reduction in cost. The accompanying table, therefore, is of particular interest in showing the steadily increased consumption and lower cost per kilowatt-hour since 1913. This trend was marked before TVA and REA were launched or thought of, for even during the boom years when general prices were rising, the cost of electric service was steadily declining and today while the cost of living has advanced to 140 compared with 100 for 1913, domestic electric service costs have dropped to 57 per cent of the 1913 average.

Domestic Electric Service vs. Cost of Living

(Data relative to domestic electric service for the electric light and power industry as compared with the cost of living data issued by the United States Bureau of Labor Statistics.)

Index Number—1913 = 100					
Year December	Average Annual Use (Kwhrs)	Average Annual Bill	Average Price Paid Per Kwhr	Cost of Living*	Domestic Electric Service
1913	264	\$22.97	8.70	100.0	100.0
1914	268	22.25	8.30	102.7	95.4
1915	260	20.80	8.00	104.7	92.0
1916	265	20.15	7.60	116.6	87.5
1917	268	20.15	7.52	138.3	86.5
1918	272	20.50	8.27	166.9	95.1
1919	293	22.55	7.70	191.4	88.5
1920	339	25.25	7.45	195.6	85.6
1921	347	25.65	7.39	174.8	85.0
1922	350	26.50	7.38	170.3	85.0
1923	368	26.50	7.20	174.7	82.8
1924	378	27.25	7.20	174.3	82.8
1925	398	28.90	7.30	181.3	84.0
1926	427	29.89	7.00	178.3	80.6
1927	443	30.21	6.82	175.1	78.3
1928	463	30.70	6.63	173.3	76.3
1929	500	31.65	6.33	173.7	72.8
1930	548	33.04	6.03	163.6	69.4
1931	584	33.76	5.78	148.4	66.5
1932	601	33.54	5.58	133.5	64.2
1933	604	33.16	5.49	134.6	63.1
1934	631	33.44	5.30	137.8	60.9
1935	673	33.85	5.03	140.7**	57.8

*U. S. Bureau of Labor Statistics (Revised Series—September, 1935).

**As of October 15, 1935.

Increased Electric Output in the South

PRODUCTION of electricity by electric light and power plants in the Southern States made consistent gains during 1936 and is now at the highest annual rate on record. Weekly changes in the upward rate of output in the South, compared with the production for the corresponding periods of 1935, show that this section has been going ahead of the rest of the country, as indicated in recent weekly figures.

Per Cent Increase 1936 Over 1935		
Week ending	Southern Region	United States
October 24	18.5	14.3
October 17	18.5	16.5
October 10	22.9	16.1
October 3	21.5	16.4
September 26	23.8	16.1
September 19	23.3	17.2
September 12	23.4	15.3
September 5	23.3	18.0
August 29	23.3	18.0
August 22	21.3	15.5
August 15	18.7	14.3
August 8	15.5	14.3

In 1935 the production of electricity by public utility plants in the South amounted to 22,130,647,000 kilowatt-hours as compared with 19,704,185,000 kilowatt-hours in 1934. At the rate of increase so far this year the electrical output of the South in 1936 will be more than 25,000,000,000 kilowatt-hours.

HUTTON & BOURBONNAIS CO.

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Industrial Crating, Box Shooks, Rough and Dressed Lumber, Oak Flooring, also Pinus Strobus Pattern Lumber, White Pine, N. C. Pine, Oak, Poplar and Chestnut.

INQUIRIES SOLICITED.

FOR THEIR GREATER SERVICE USE

SHIMER SUCCESS PLANING MACHINE KNIVES AND BITS,

Surfacing Knives and many Knives of smaller proportions for special duty in wood cutting. It will be to your advantage to look into this feature of our service. Our prices, too, are very attractive if you take in consideration their extra wear.

Samuel J. Shimer & Sons, Inc.
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SEWER PIPE
CULVERT PIPE
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FLUE LINING
SEPTIC TANKS
FIRE BRICK
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CLEARFIELD, Rowan County KENTUCKY

CREOSOTED TIES, PILING, POLES, POSTS, CROSS ARMS, and LUMBER

WOLMANIZED LUMBER—

Decay and Termite Proof—Can Be Painted

Docks for Ocean Vessels

American Creosote Works, Inc.
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Plants at: New Orleans; Winnfield, La.; Louisville, Miss.
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SHAVINGS AND SAWDUST BALER

The press is made of steel and cast iron and will stand up under the tests of continuous service. Operated with steam or compressed air.

CAPACITY

Two carloads (500 to 600 bales per ten-hour day). Presses standard bale.

DEALERS WANTED—PRICE ON APPLICATION

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To add from 8 to 20 times the ordinary life and service you might expect from your lumber, use only pressure-preserved woods treated with ZMA or Creosote. Eppinger & Russell Co. has, for 58 years, been treating poles, ties, posts, piling, cross arms, cross ties and other timber for the nation's leading industrial firms and utilities. Safeguard your lumber against dry rot and termites by employing this outstanding wood-treating service.

PRESSURE-TREATING PLANTS AT:

Jacksonville, Fla.

and

Long Island City, N. Y.

WOOD PRESERVERS SINCE 1878
EPPINGER & RUSSELL CO.
84 Eighth Ave., New York City

Northern Hard Rock Maple Flooring

BLOCK

Holt Hardwood Co., Oconto, Wis.

STRIP

MEMBERS OF MAPLE FLOORING MANUFACTURERS ASSOCIATION

Elevated Storage Water Systems

ELEVATED storage water facilities for municipal service have been receiving greater attention in the South in the past few years. And more attention has been given to fundamental principles of waterworks engineering to furnish adequate uninterrupted supply.

An illustration of an efficient system of this character is that at Alva, Okla., which obtains advantages from its elevated storage located on the opposite side of the city from the source so that the area of maximum demand will be fed from two or more directions during peak periods. This reduces friction and head losses and cuts operating costs.

The city is located on a hillside. A 300,000-gallon elevated tank 55 feet to the high water level was installed in the southern portion of the city in 1912. Last year a 500,000-gallon radial-cone tank was built at the southwest corner of the city. The high water levels of the two structures are at the same elevation and they are both connected directly to the distribution system without control valves of any kind.

The water supply of Alva is obtained from four shallow wells about five miles from the municipal limits. Two of them are equipped with 300-gallons per minute triplex pumps, the third with a 200-gallon triplex unit and the fourth with a 440-gallon multiple stage turbine pump. All are electrically driven and the capacities given are delivered against a 250-foot head. The pumps are operated at 100-pounds per square inch pressure. The pressure of the distribution system varies

500,000 Gallon Radial-Cone Tank Serving
Alva, Okla.



with the elevation, averaging about 84 pounds per square inch in the business district.

The additional storage capacity provided by the new tank and the laying of larger transmission mains to the old tank enabled the city to reduce pumping costs about 20 per cent. About 1,230 customers are served and the average daily consumption is about 600,000 gallons.

The Benham Engineering Co., of Oklahoma City, Okla., were in charge of the waterworks improvements at Alva and the tank was furnished by the Chicago Bridge & Iron Works.

Ceramic Resources of San Antonio Territory

Vast Raw Materials Available for Local Industrial Development to Supply Increasing Demand in Southwest Texas

INVESTIGATION

into practical uses and values of the clays and other ceramic resources of San Antonio's surrounding territory brought to light many manufacturing opportunities. It is shown that deposits large enough for commercial use can support local factories for ceramic products not now manufactured within 1000 miles of Southwest Texas and thereby meet an increasing demand throughout this area.

Referring to the establishment of a complete laboratory, kilns and other equipment at San Antonio for the making of practical tests, proving that wares can be commercially produced from local materials for practically any branch of the

ceramic industry, Chris Shelby, Industrial Representative, the San Antonio Public Service Co., states that:

Feldspar—One of the greatest finds our laboratory reported came from large deposits near San Antonio in Llano County. This feldspar is as good as any in the United States, according to numerous authorities.

Flints—A number of flint tests were made and found quite satisfactory. There are unlimited supplies of flint in this territory.

Quartz—Excellent qualities of quartz are found in large quantities in this territory and near principal feldspar deposits.

Silica Sand—Enormous deposits of Silica sand, found to be 99.87 per cent pure, are located around San Antonio.

Among the ceramic products that can be made from raw materials in Southwest Texas are:

Pottery

Red earthenware
Red and brown white-lined cooking ware
Stoneware
Yellow and Rockingham ware
Chemical porcelain
Whiteware, including cream color, white granite, semi-vitreous and porcelain ware
Porcelain china, bone china, delft, and Bol-leek ware
Hotel china
Vitreous china plumbing fixtures
Bathroom and toilet fixtures, including laundry tubs and kitchen sinks
Semi-vitreous or porcelain plumbing fixtures
Porcelain electrical fixtures and supplies
Art pottery
Saggers

Clay Products Other Than Pottery

Roofing tile
Terra cotta
Floor tile, plain vitreous, encaustic quarry, etc.
Ceramic mosaic tile
Faience tile, including wall tile.

The markets open to manufacturers of clay products of the territory are served by three trunk line railroads: the Southern Pacific, Missouri Pacific, and Missouri-Kansas-Texas Lines. Paved highways enable local manufacturers to ship by truck to commercial centers throughout the Southwest.

The completion of the ports of Corpus Christi, Aransas and Point Isabel, considerably improved facilities for international trade and affords Southwest Texas direct service by water to the Eastern United States.

Lying in the center of one of the greatest natural gas, oil and lignite coal producing regions, an unlimited fuel and power supply is available at low cost. These advantages are rounded out by an abundant supply of labor.

Minerals now being mined, manufactured and shipped in the San Antonio territory, include gypsum, sulphur, salt, lime, asphalt, manganese, Fuller's earth, feldspar, quartz, silica, china clay, flint, lignite, quicksilver, granite, marble, limestone and many others.

\$5,000,000 Cotton Order

Filling an order from the B. F. Goodrich Company, Akron, Ohio, for \$5,000,000 worth of Mississippi cotton for the manufacture of tire fabric, farmers of the state are profiting by the deal.



Certain-teed

Cordially invites you

to go through the Certain-teed Roofing Plant at Savannah, Ga. See "Millerizing" . . . see the "Sealed Granules" process. Or, for immediate information, call at one of these Certain-teed offices:

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 Baltimore, Maryland, 1309 Lexington Bldg.
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 Plant located at Savannah, Georgia

CERTAIN-TEED PRODUCTS CORP.
 General Offices New York, N. Y.

SOUTHERN MADE FOR SOUTHERN TRADE



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 PITTSBURGH, PA.
 C. W. G. Used with Corrugated Roofing

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 CORRUGATED WIRE GLASS
 FOR SKYLIGHTING**

They diffuse light with a minimum of shadows. They are self cleaning and can be used on a roof of any material, and supply daylight in manufacturing and industrial plants—an important factor in all modern production.

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 USE BLUE "OGLESBY" GRANITE**
*It Assures Greater Permanence—Unusual Beauty
 Reasonable Cost*

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Quarried by—
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 THE MONARCH OF FLOORS



We contract to install guaranteed cement floors anywhere in the Country. Either your job specifications, or a Ven-ite specification; figured optional with yourselves.

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**VEN-ITE HEAVY DUTY INDUSTRIAL FLOORS
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 VEN-ITE ACID PROOF FLOORS
 VEN-ITE BLACK TOP FLOORS
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All work guaranteed against disintegration, dusting, and loose bond.

VEN-ITE COMPANY INCORPORATED
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Kanawha City Development, Charleston, W. Va. Architects, Warne, Tucker & Silling, Charleston. Walls painted with Cabot's DOUBLE-WHITE COLLOPAGES, shutters with Cabot's Gloss Collopakes; roof stained with Cabot's Creosote Shingle Stains.

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The sparkling crisp colors of Cabot's Collopakes (the colloidal paints) and Cabot's Stains make the houses in any development easier to sell. Their long life and economical upkeep invariably make friends for the builder. For further information, sign and mail coupon below.

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Gentlemen: Please send me further information on ☐ Cabot's Collopakes; ☐ Cabot's Stains.

Name

Address MB-11-36

Tung and Soy Bean Oil Developments

The present plantings of tung trees in the Picayune, Miss.-Bogalusa, La., territory total the largest in America, states B. B. Jones, county agent, Agricultural Extension Service, New Orleans. Additional plantings are expected to be made during the next several months and this industry undoubtedly will become of prime importance within the next few years.

This section has an excellent crop of nuts ready to be harvested and this section's first commercial oil producing operations will take place during the winter months.

In the five years 1930-1935 there was a nine-fold increase in tung-oil trees planted in the six Southern States as follows:

States	Number of trees		Acres
	1930	1935	
Alabama	8,687	63,364	794
Florida	300,834	1,064,511	13,478
Georgia	3,162	215,898	3,076
Louisiana	4,644	213,009	2,659
Mississippi	33,451	2,068,119	20,078
Texas	15	7,400	81
Total	350,793	3,632,361	40,166

A large tung oil crushing plant is now being built in Picayune. A similar plant is located at Bogalusa. The first tung oil processing plant erected in the United States is at Gainesville, Fla.

A matter of additional interest is the fact that the new tung oil plant is being equipped to produce soy bean oil. This product is becoming an important one in this country with the creation of new industrial uses of the soy bean for the

manufacture of plastics. The utilization of cut-over lands for the planting of tung trees and the growing of soy beans for oil and meal purposes should prove a profitable new outlet for Southern agriculture.

\$100,000,000 For Southern Waterway Projects

(Continued from page 42)

acre feet for flood prevention in the Monongahela and Ohio Valleys. The estimated cost of the project is \$15,700,000 of which \$12,000,000 has been provided from Emergency appropriations, and \$3,700,000 from the War Department appropriation act approved May 15, 1936.

Contractors:

Frederick Snare Corp., New York, N. Y.
The Babcock & Wilcox Co., New York, N. Y.
Treadwell Construction Co., Midland, Pa.
Baltimore & Ohio Railroad Co., Baltimore, Md.
Michigan Valve and Foundry Co., Detroit, Mich.
Guthrie, Marsch & Walker Co., Chicago, Ill.

Kanawha River, W. Va.

The construction of four new locks and dams to replace old obsolete structures on the Kanawha River as well as three on the Ohio River, is rapidly approaching completion. When completed these structures will provide 9-foot navigation from the mouth of the river to a point 90½ miles above. Three of the structures are located on the Kanawha River while one is located on the Ohio River near Gallipolis, Ohio. Funds in the amount of \$14,283,200 have been provided to date from Emergency appropriations.

Contractors:

Robinson Branin Co., Inc., New York, N. Y.

Dravo Contracting Co., Pittsburgh, Pa.
Boso & Ritchie, Ravenswood, W. Va.
M. W. Zinn, Huntington, W. Va.
Neighborgall & Leach, Inc., Huntington, W. Va.

Beltzhoover Electric Co., Cincinnati, Ohio.

Bluestone Reservoir, New River, W. Va.

Funds in the amount of \$649,850 have been provided to date from the Emergency Relief appropriation act of 1935 for preliminary surveys, investigations, and acquisition of land. This project will provide for the development of electrical power, as well as aid in flood control. The total estimated cost of the project is about \$13,000,000.

Sardis Reservoir, Little Tallahatchie River, Miss.

Funds in the amount of \$900,000 from the Emergency Relief appropriation act of 1935, and \$2,500,000 from the War Department appropriation act have been allotted to this project, estimated to cost \$10,500,000. The operations to date consist of preliminary work only.

Possum Kingdom Dam, Brazos River, Tex.

The construction of this project, which is a part of the comprehensive reservoir system on the Brazos River, is being carried out as a State Works Project under the supervision of the Corps of Engineers. The sum of \$600,000 has been allocated from the Emergency Relief appropriation act of 1935 for commencement of work on the project.

Denison Dam on the Red River, Tex. and Okla.

Funds in the amount of \$500,000 have been allocated from the Emergency Relief appropriation act of 1935 for preliminary studies and investigations in connection with this project, which is estimated to cost about \$50,000,000.

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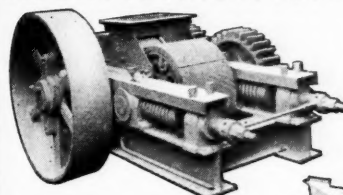
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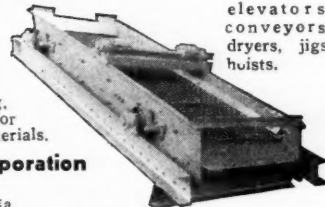


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SOUTHERN raw materials are finding their way into many by-products and new uses. This means the establishment of entirely new industries in the South which in turn lead to further developments.

Some years ago a new by-products industry was established in the South to make wall board building material from sugar cane fibre waste. The Celotex Corporation was the pioneer in this work. As rapid expansion of air-conditioning in the past year or two increased demand for insulating materials, this concern has broadened its output in the insulating material field. Recent activities include the manufacture of a new product known as Vaporseal insulating sheathing with a specially prepared coating to resist moisture. Another new product is Texboard, a wood veneer on Celotex utility board. These and Acousti-Celotex, another cane fibre product, which has been made for several years, have been added to the initial wall board first manufactured in the South from the hitherto waste sugar cane after it had been crushed to extract the juice for sugar making.

In addition to the new insulation products, the Corporation, to provide greater assurance to the buyer and encourage a more rapid increase in good construction, is issuing a "Life-of-Building Guarantee" on Celotex cane fibre insulation when used on the project.

Further expansion of operations is indicated by the Celotex Corporation's recent acquisition of the R. F. Scott Co. plant at Metuchen, N. J., which is being used for the development of new products, and to broaden its ability to serve the building industry with sound absorbing materials, the Corporation has acquired the Calicel Company, manufacturers of a decorative form of fire-proof acoustical tile, resembling a natural stone in finish and texture.

Thus is illustrated, in the case of this one enterprise, how the initial development of a new industry can lead to the creation of additional products and new uses of raw materials.

Petroleum Industry

(Continued from page 38)

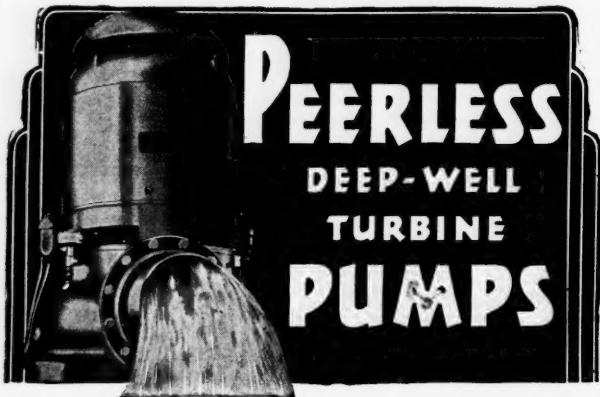
nation depends upon this industry.

Furthermore, since petroleum and its products pay approximately one-eleventh of the revenues raised by city, state and Federal Governments, the nation, merely from the fiscal side, has a vital stake in

anything which may affect this industry. Progress in the industry has been hampered by increasing taxes. In 1935, these taxes amounted to \$1,127,259,000, it has been estimated.

Congress has given its consent to an interstate compact between oil-producing states by which these states may agree upon certain phases of production control. This compact has already achieved much good and gives promise of larger service.

It is recognized, however, that regardless of the sincere efforts put forth either by state agencies or by the industry itself in the attempt to secure a balance between supply and demand, this cannot be maintained unless there is some equally effective control of imports. At present there is no regulation of this source of supply. All that may be done to keep down domestic production will be of little effect if unexpectedly large quantities of imports are permitted to disturb that balance at any time. Foreign petroleum, with an average production cost of a dollar less than the domestic cost is able to destroy both the balance and the price structure at the will of a few importers. Congress has been asked to remedy this situation and it is expected that proper legislation will be adopted applying to imports the same degree of regulation and limitation which is now imposed upon domestic production.



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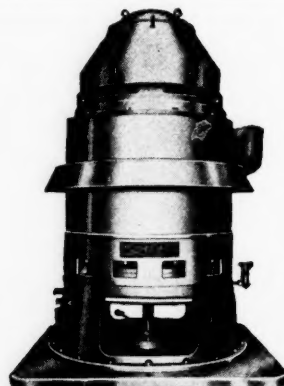
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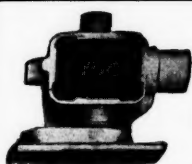
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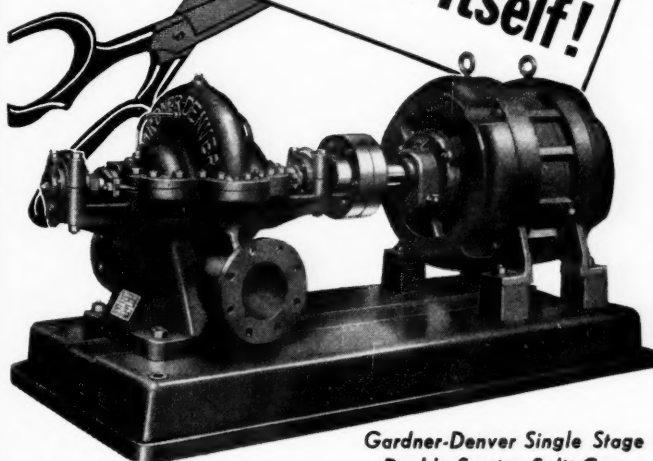
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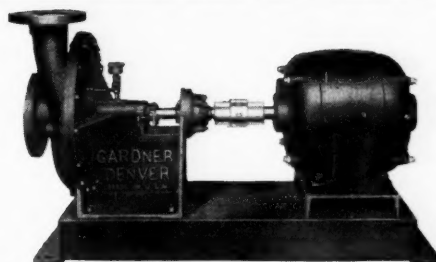
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Mine Mechanization

(Continued from page 43)

had indicated that it required one-half of the coal miners time to undercut the seam, the other half in loading and timbering, but when mining machines were first adopted there was a very persistent objection to them on the part of the miners, a situation which has now been entirely overcome. Under the wage rates existing today, the hand loading rate is 50.2 cents per ton, but the wages for the undercutting machine operators is only 8 cents per ton, yet machine runners usually earn more than the loaders which shows clearly the advantage of the mechanical cutting machine.

Economic and Safety Factors

Aside from the economic feature, one of the important reasons for mechanical loading is the safety of the men employed. In our mines about one-half of the accidents are due to falling of coal and rock at the face. Where machines are employed, these accidents will be greatly diminished because a man does not have to be near the face where mechanical loading is employed. Economic features are deserving of serious consideration because with the higher wage rates the cost of production has increased to such an extent that other fuels such as gas, oil, and

water power are making serious inroads on the coal tonnage.

Recently there have been a number of protests against the adoption of loading machines and conveyors on the theory that these appliances are displacing men at a time when we should be working for more employment instead of less, but the fallacy of this argument is very clear. It may as well be said that linotype machines should be discontinued because they displace type setters or that we should discontinue our automatic bottle making machines because a number of glass blowers are out of employment.

Protests against mechanization have been sponsored largely by the leaders of the United Mine Workers in keeping with the usual policy against any innovations. Furthermore, uninformed government officials, catering to popular vote, have opposed mechanization without any understanding of this problem. It is true that there are many idle coal miners, and it has become an accepted theory that once a man is employed in a coal mine, he feels that he is entitled to a job for the remainder of his life.

Mine mechanization is but another cog in the wheel of progress. It should not be checked because of the ignorance of the labor leaders or the vote getting efforts of our politicians. Few outside of the coal industry have a comprehensive idea

of the investments made by the builders of mining equipment and the materials required for this machinery. Furthermore, the man in the mine operating these machines receives higher wages than the coal loaders today. With the taxation under the Social Security Act, mine operators will be compelled to use as few men as possible because the greater the number of men employed, the higher the contributions under the proposed tax program.


Coal mining is still in its infancy, and almost daily conditions arise due to new methods of utilization. Sections which were prosperous a few years ago are idle today. Take for instance the bee hive coke oven. In 1923, 62,349 bee hive ovens were reported in operation, according to the Bureau of Mines, in this country. In 1934, this had shrunk to 14,206 ovens. This has been due to the development of the By-Product ovens which are more efficient, but, of course, the coal operators had to pocket the loss on the 50,000 ovens which are now dismantled. Domestic stokers are now coming into use at a very rapid rate and between 10,000 and 15,000 are installed each year displacing lump coal with smaller sizes which are used more economically.

One of the chief reasons for mine mechanization was the high cost periods following the World War which brought about a sharp reduction in production due to fuel economies. Railroads reduced their consumption 20% by the adoption of feed water heaters, super heaters, stokers, and more care in firing. Power plants now produce 1 KWH of electrical energy per pound of coal as compared with five pounds only a few years ago.

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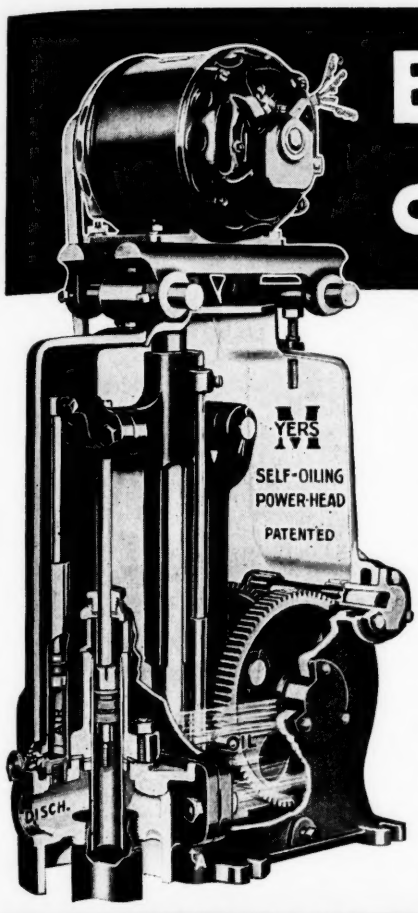
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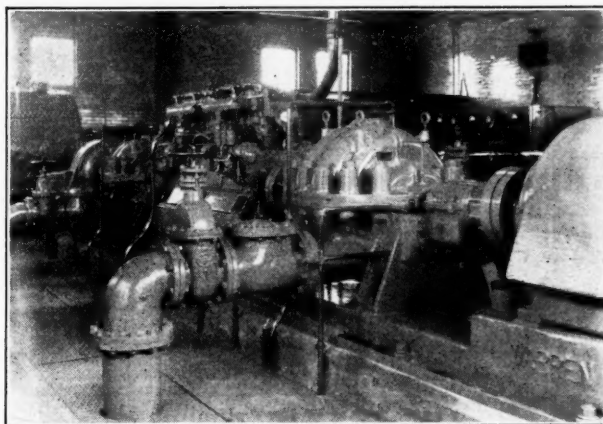
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The Electric Controller & Mfg. Co., Cleveland, Ohio.

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McRae's Blue Book—This valuable purchasers' guide for 1936-37 has been thoroughly checked and revised and brought up to date. More than 300,000 changes have been made in the classified Material Section alone. It is divided into five convenient classifications as an aid in instantly locating all sources of supply by any name which may occur.

The American System—Shall We Destroy It?—Under the foregoing title a 295-page volume by S. Wells Utley, A. B., has been published by the Speaker-Hines Press, Detroit. The author points out in his introduction that he has endeavored to "paint a picture" of the manner in which the so-called Capitalistic System, as developed under American social and political conditions, has been affecting the everyday life of the people—what it is, what it means to the individual, what its results have been, what we shall lose if we substitute something else for it. He writes from the point of view of one who has had some acquaintance with elementary economics as a college student, and who for some thirty years has been connected with a manufacturing plant, being responsible for most of that time of producing the money to meet the weekly payroll. Mr. Utley is President and General Manager of The Detroit Steel Casting Company; Vice President, The National Association of Manufacturers; former President, the Employer's Association of Detroit, the Detroit Board of Commerce, the Michigan Manufacturers' Association, the American Foundrymen's Association, and the National Founders' Association.

Prelude to Panic—The story of the 1932-1933 banking crisis by Lawrence Sullivan, published by The Statesman Press, National Press Building, Washington, D. C., 136 pages—Price \$3, discusses, "Was the banking holiday of 1933 necessary?" It sets forth why growing fears of the New Deal precipitated the crisis. It is a clearly expressed view of the financial situation by a veteran Washington Journalist, who, from the Treasury, Department of State, and the White House, saw the crisis develop from day to day over a period of three months. From the evidence presented the author believes that Mr. Roosevelt planned inflation several months before the 1932 election, notwithstanding repeated pledges in the campaign for sound money to be "maintained at all hazards." Although a strong tide of business recovery had begun to move in all major countries in the summer of 1932, this long-awaited upturn was dissipated completely in the United States after the November elections. Mr. Sullivan charges, based on quotations from official records and statements of Professor Tugwell, that the banking crisis came to America not because of economic or financial failure, but a cruel political conspiracy against the national welfare to refashion America in the mold of collectivist planned economy.

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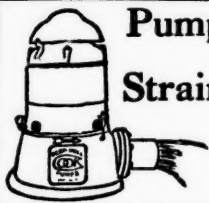
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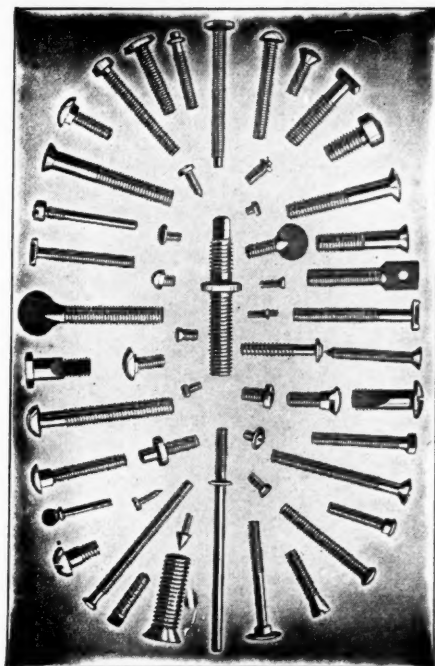
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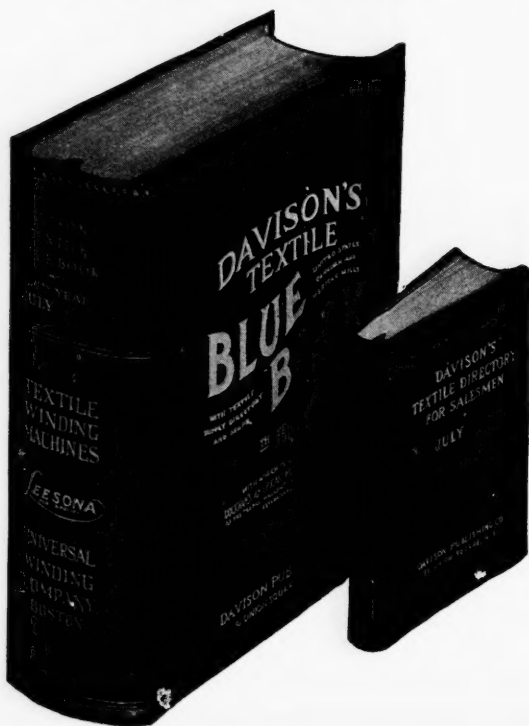
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First Ford Dealers Meeting

For the first time in the history of the Ford Motor Company, which was founded more than 33 years ago, Ford dealers from all parts of the United States and Canada will meet at Dearborn, Mich., November 6 for a meeting with Henry Ford, founder, and Edsel Ford, president of the company. It is anticipated that approximately 7000 dealers will be in attendance, requiring a fleet of 200 buses to transport them to the State Fair Grounds for the meeting. The purpose of the gathering will be the unveiling to dealers of the new Ford V-8 cars for 1937.

Barbecue Marks Plant Opening and Anniversary

An "old-fashioned Southern barbecue" has been announced by Standard Brake Shoe & Foundry Company, of Memphis, Tenn., for Saturday, November 14. This celebration will mark the formal opening of the company's new plant in Memphis and its eighty-sixth anniversary.

Stewart Iron Works Golden Anniversary

Being probably the world's largest producer of picket fencing, as well as a large producer of prison equipment, The Stewart Iron Works Company, Covington, Ky., recently marked the fiftieth anniversary of its existence. The company began operations in 1886 in Wichita, Kansas, its organizers being R. C. Stewart, its president, and his brother, the late W. A. Stewart. In 1904 the business was moved to Cincinnati, where it grew to such proportions as to justify the construction of the present large iron works at Covington, and it now occupies a high position in the fabricated iron and steel products industry. Its present factory contains over 350,000 square feet of floor space, located on the Louisville and Nashville Railroad.

Railway Development Association

New officers elected at the 28th annual meeting of the American Railway Development Association last month in Chicago included: J. A. Senter, industrial agent of the Nashville, Chattanooga and St. Louis Railroad with headquarters at Nashville, was elected president of the Association; E. H. Gurton, of the Canadian Lines with headquarters at St. Paul, vice president; R. G. Buford, Missouri-Kansas-Texas Lines, Dallas, 2nd vice president; and E. J. Hoddy, general development agent, Louisville & Nashville Railroad, Louisville, secretary-treasurer.

H. J. Schwietert, general agricultural agent, Illinois Central System, Chicago, commenting on the meeting, reported the largest attendance in years. The organization is composed of men who recognize their responsibility in furthering agricultural and industrial development.

PROPOSALS

SOUTH CAROLINA STATE HIGHWAY
DEPARTMENT
Columbia, S. C.
October 9, 1936

NOTICE TO BRIDGE CONTRACTORS:

The South Carolina State Highway Department contemplates opening bids within the next three or four months on four major bridge projects estimated to cost from \$175,000.00 to \$525,000.00, each, together with numerous smaller bridges.

Contractors who are not already qualified for work in South Carolina are invited to become qualified to bid on these projects. The requirements for bidding include the following:

(1)—The procuring of a contractor's license issued by the South Carolina Licensing Board of Contractors, Room 219, Jefferson Hotel, Columbia, S. C. Application for this license must be made thirty days prior to the time the license is issued.

(2)—The procuring of a bidder's license from the South Carolina Tax Commission, State Office Building, Columbia, S. C. It is not necessary to make application for this license in advance as it may be taken out any time up to the hour of opening bids.

(3)—The procuring of a contractor's certificate from the South Carolina State Highway Department, State Office Building, Columbia, S. C. indicating the classes and amounts of work that may be bid on. This is a prequalification measure similar to that in many States.

If interested in this work, communicate with Mr. J. S. Williamson, State Highway Engineer, State Office Building, Columbia, South Carolina.

BEN M. SAWYER,
Chief Highway Commissioner.

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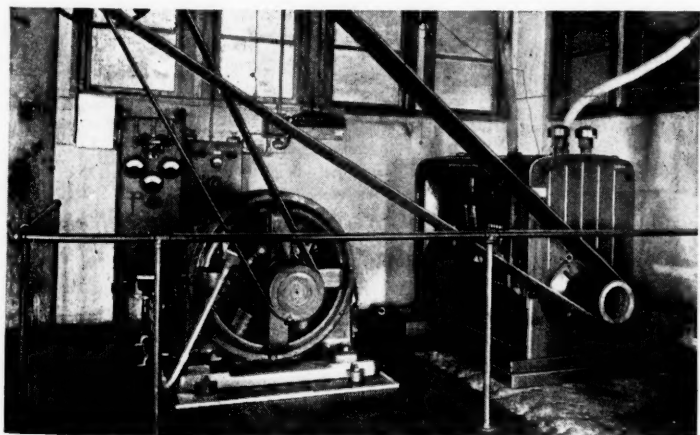
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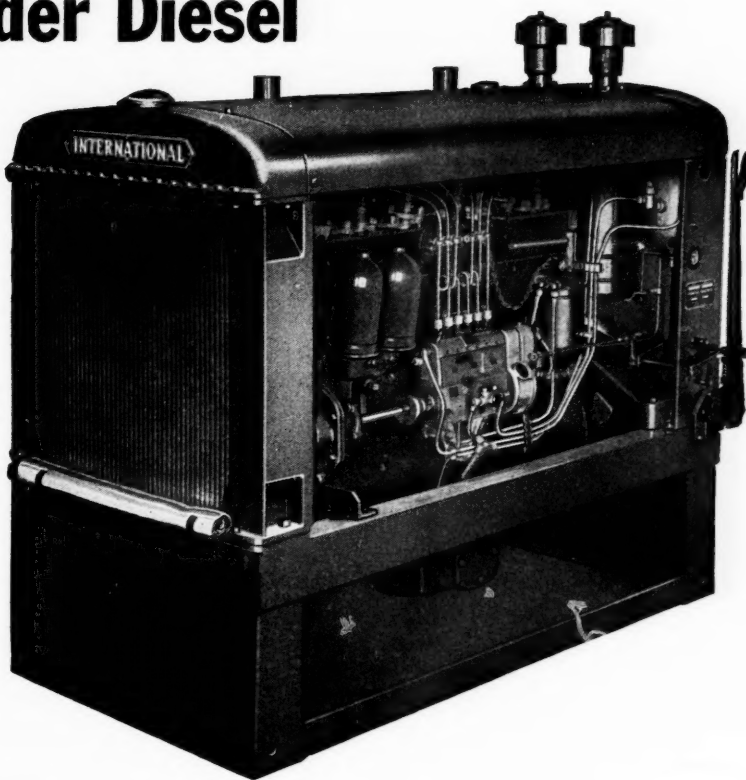
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SPECIFICATIONS

International Model PD-80

Maximum Horsepower (corrected to sea level barometric pressure and 60° F—power unit fully equipped).....	100
Horsepower, Continuous Load (80% of maximum horsepower).....	80
Number of Cylinders.....	6
Bore and Stroke, inches.....	4¾ x 6½
R. P. M.....	1400
Clutch Diameter, inches.....	15
Clutch Torque, pound feet.....	785
Flywheel Housing.....	S. A. E. No. 1
Fuel Used.....	Diesel Fuel
*Belt Pulley Diameter, inches.....	12
*Belt Pulley Face, inches.....	13
*Belt Speed, feet per minute.....	4398
Overall Length, inches (including starting crank but not belt pulley).....	98¾
Overall Width, inches (24-inch turning radius of starting crank not included)....	41
Overall Height on welded steel base, inches	66¾
Approximate Weight, fully equipped including welded steel base, pounds.....	3750

*Belt pulley is special equipment—other sizes available.

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Where **SOLVAY** SERVICE Plays Its Part In Southern Industry

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